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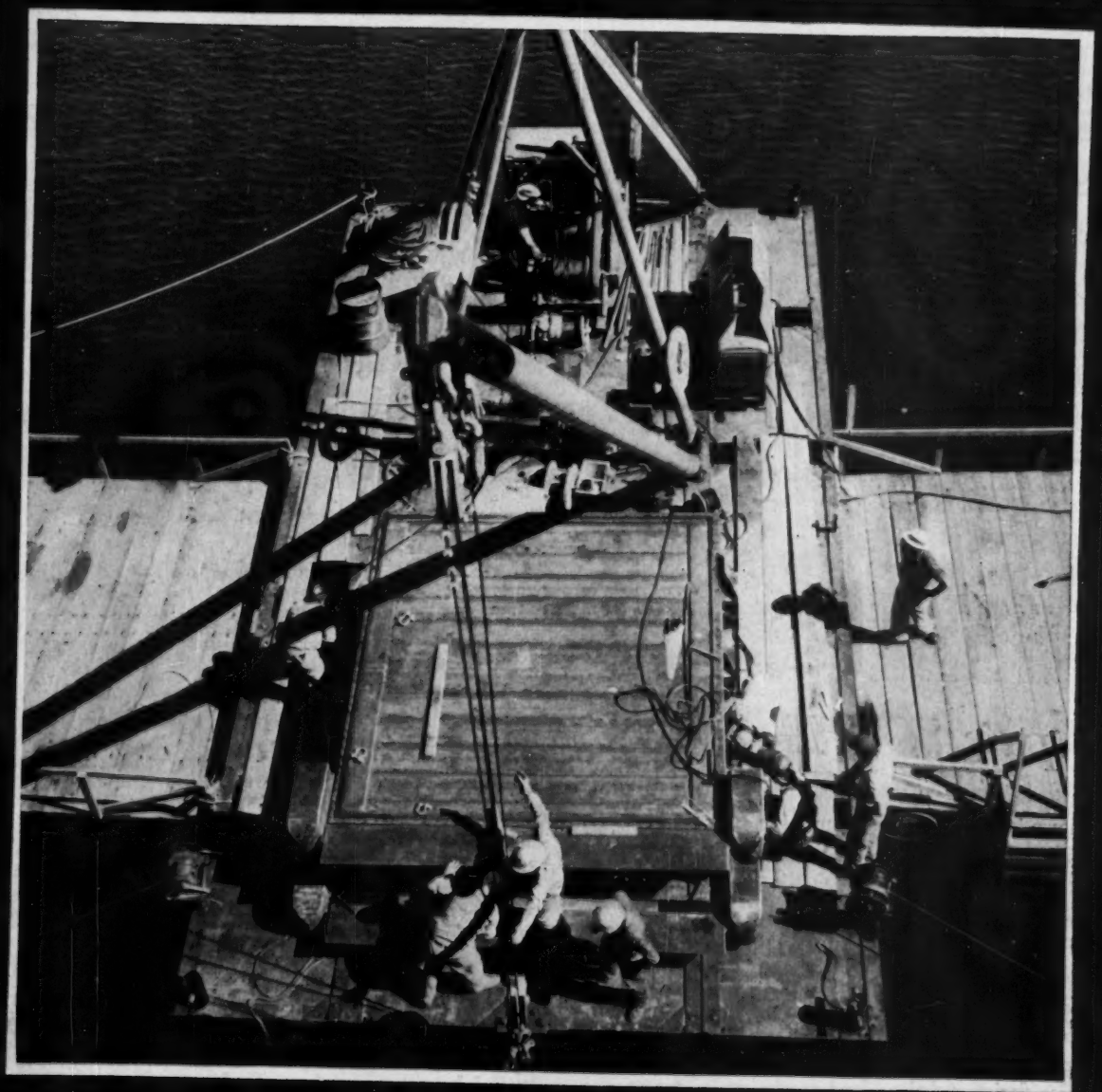

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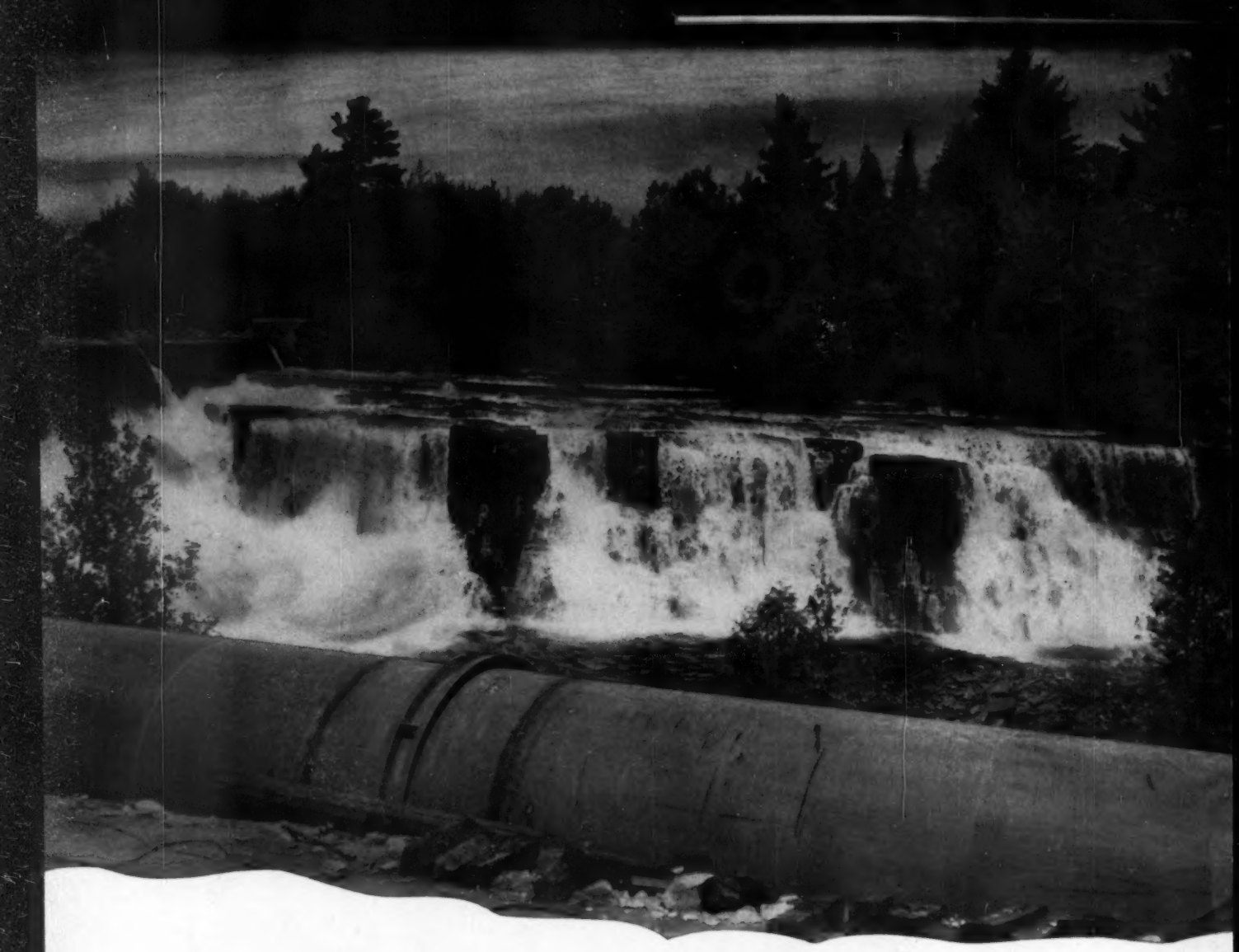

HORTON PENSTOCK

puts "Old Mother Nature" to work

Shown in the above foreground is a segment of a 1,365-lineal foot Horton Penstock installed for an Eastern power company. The penstock has a 10-ft. inside diameter and is constructed of welded steel plates. It is used to harness water from the river shown in the background.

Penstocks for harnessing water power are only one of many types of Horton® structures designed to put "old mother nature" to work for mankind. We also design, fabricate and erect elevated water tanks, pressure storage vessels and a wide variety of welded steel plate structures.

Write our nearest office for further information, estimates or quotations.

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Pace-Setting HD-5G Tractor Shovel

NOW BETTER 3 WAYS

From the time of its introduction seven years ago, the Allis-Chalmers HD-5G Tractor Shovel has been tops in popularity. Many thousands are daily proving their ability and versatility on all kinds of material handling and excavating jobs.

Now, design refinements make the HD-5G a three-way better value than ever before:

1. Has Bigger Rated Capacity

New bucket handles a big 1¼-yd load — streamlined design now helps roll in large loads with less tractor effort. The back of the bucket has been brought forward and the sides extended to cut spillage, put more payload where it's wanted.

2. Helps the Operator Do More

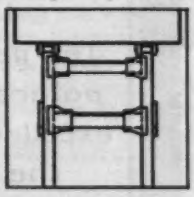
Cleaner dumping with the new bucket saves the operator time and effort shaking out loads.

For added versatility, there is a two-position bucket available with both standard automatic return to digging position and operator-controlled tip-back. If the operator chooses to use the controlled tip-back, he can load the bucket, then tip it back approximately 25° before raising, assuring maximum output under special conditions such as downhill loading or loading loose materials.

The HD-5G helps the operator do more in other ways, too — giving him full vision, fast and easy control, cleaner platform and more comfortable seat from which to work, and more working time with truck wheels, support rollers and idlers that need greasing only once every 1,000 hours.

3. Works at Lower Cost

The HD-5G now works at even lower cost than ever before — not just because it *does more*, but because it has features that mean *less maintenance, longer life*. For instance, new type tubular bracing on the bucket booms provides added strength and support, keeps the bucket in line. The floor at the rear of the new bucket has been raised seven degrees to reduce wear on the bottom sheet. Heavy-duty truck wheels and idlers are available for particularly tough working conditions. One-piece, full-length main frame permits unit construction so that major assemblies can be removed without disturbing adjacent units, putting tractor back on the job in hours rather than days.



Ten Quick-Change Attachments Add to HD-5G Versatility

Bulldozer	Crane Hook	Tine Fork
Angledozer	Light Material Bucket	Rock Fork
Narrow Bucket	Trench Hoe	— also rear-mounted Ripper
Rock Bucket	Lift Fork	

See your Allis-Chalmers dealer for more about these and other production-boosting features of the popular HD-5G Tractor Shovel.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

SUGGESTED DESIGN FOR PROPOSED GRAND CENTRAL BUILDING, NEW YORK
Architect: Harry L. Brumond, A.I.A.

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Architect

Whether you are rendering, detailing, or making working drawings, get the Mars-Technico (illustrated) and Mars-Lumograph imported drawing leads today—you'll be glad you did. The 1001 Mars-Technico—$1.50 each—less in quantity. 1904 Mars-Lumograph Leads—available in 18 degrees—EXB to 9H, $1.20 per dozen—less in quantity.

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Robert F. Boger
Publisher

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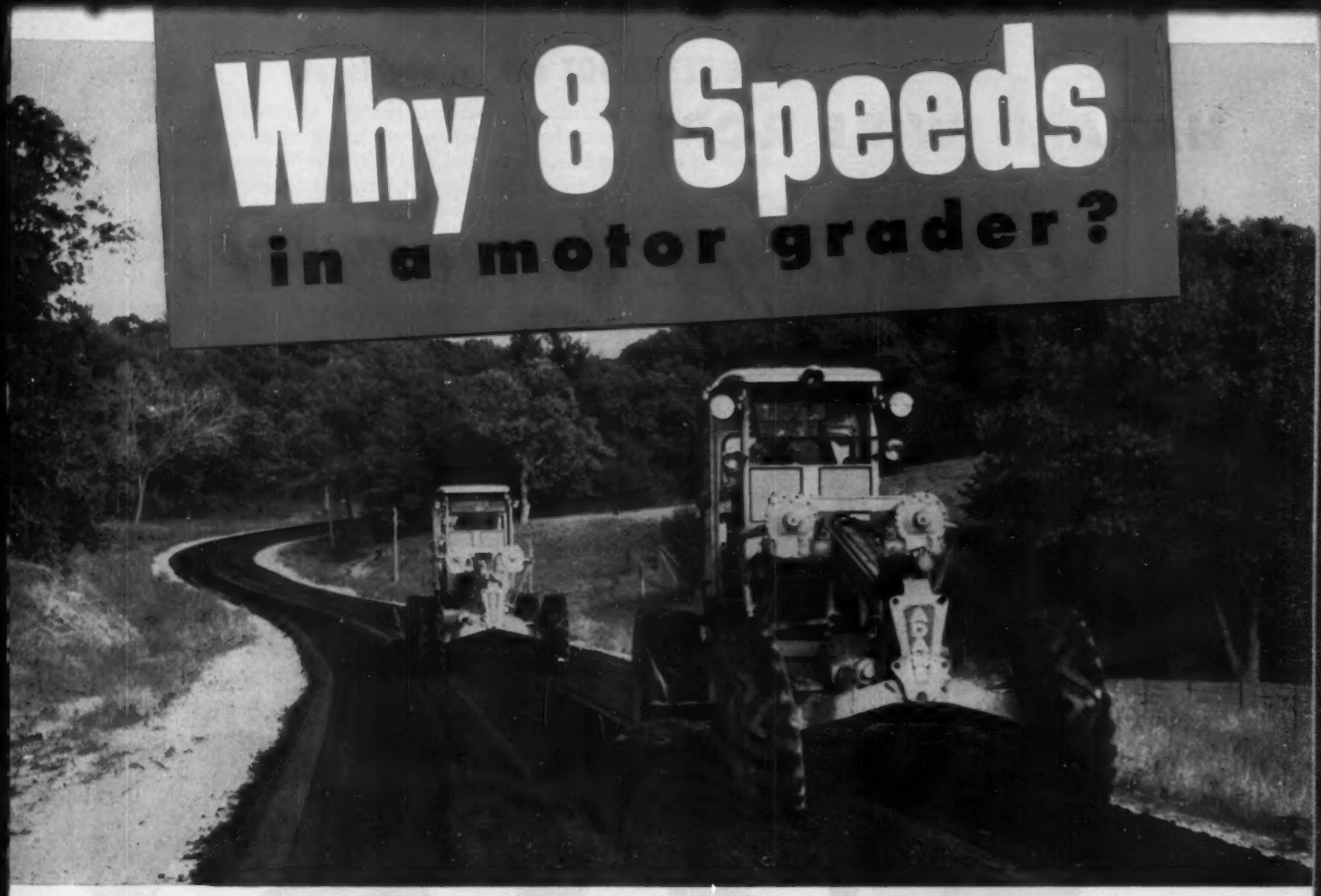
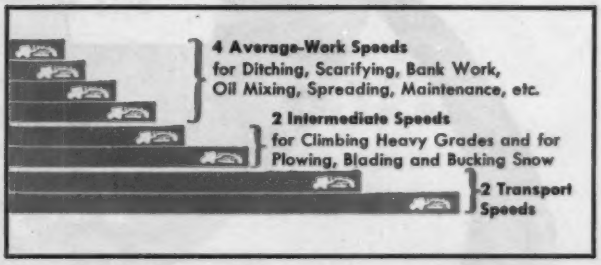
Why 8 Speeds in a motor grader?



Let your ADAMS dealer show you!

● Setting a motor grader's speed to work at the fastest practical rate (while using full hp.) can increase production as much as 10% to 25%, particularly on "constant-speed" work, such as ditching, oil mixing, spreading and surface maintenance . . . Adams 4 working speeds (instead of usual 3) enable operator to pick up this extra production to your profit . . . Also, Adams 2 transport speeds (up to 25 mph.) save more valuable production time in traveling up to 30% faster between jobs.

Other important advantages that make Adams Motor Graders your best buy include: 4 reverse speeds—optional creeper speeds (low as ¼ mph.)—easy-shifting, constant-mesh transmission—rubber-mounted engine—dual braking system . . . Available in 4 models, from 75 to 140 hp . . . Don't buy any motor grader until you investigate Adams—the most advanced line on the market. See your local Adams dealer or write


4 Average-Work Speeds
for Ditching, Scarifying, Bank Work,
Oil Mixing, Spreading, Maintenance, etc.
2 Intermediate Speeds
for Climbing Heavy Grades and for
Plowing, Blading and Bucking Snow
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ADAMS 8 FORWARD SPEEDS

Adams Motor Graders give you 2 more forward speeds than most graders—8 instead of 6. These additional speeds give you an extra working speed—4 instead of 3—and a higher "high"—up to 25 mph.—for getting to and from the job.

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Make your next motor grader an **ADAMS**

HAZARD WIRE ROPE

Proudly Announces

LAY-SET VHS

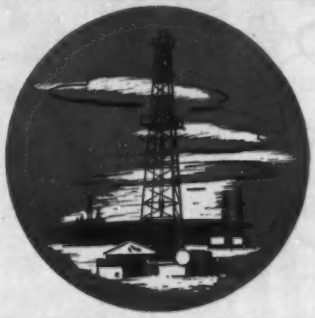
A NEW WIRE ROPE OF

Very High Strength

Developed for the TOUGHEST JOBS

Until very recently, certain confidential military applications have consumed almost all of our available production of LAY-SET VHS. However, since World War II a limited amount has been field tested in certain specific commercial applications.

Now you can get LAY-SET VHS for seven major uses—for scrapers, bull-dozers, drag lines, shovel hoist ropes, logging arch lines and chokers, rotary drilling lines and slushers. These applications are among the toughest wire rope has to meet. The unusual demands they make on wire rope dictate the use of VHS.



Costs Less to Use

Because it lasts longer and cuts "down time" for replacement, VHS wire rope costs less to use. It increases work output. Since it is stronger and tougher, it reduces the footage of rope you need to buy to operate your equipment.

Carefully kept service records on actual field tests in the applications mentioned above prove the greater economy of LAY-SET VHS.

At Least 15% Stronger than Other Grades

VHS is a new grade of steel for wire ropes. It is at least 15% stronger than Improved Plow Steel, which up to now, has been the strongest standard grade of wire rope manufactured.

This means that in some applications you may be able to use smaller lines to carry the same load. In other applications you may be able to carry heavier loads with lines of the same size.

Tougher Rope for Longer Life

In addition to being stronger, the new VHS wire is tougher and more wear-resistant. It offers greater resistance to abrasion. It keeps its shape under pressure . . . can't become "hide bound" or lose its flexibility.

This extra toughness and wear-resistance means longer service life . . . and less "down time" of equipment for rope replacement.

Biggest Improvement Since LAY-SET Preformed

LAY-SET VHS is the greatest improvement in wire rope since ACCO introduced Preformed over thirty years ago. It combines greater strength and toughness with all the advantages of Preformed construction. As proven in actual field tests, it lasts longer and does more work with less "down time" for replacement.

Find out how you can reduce service costs by using LAY-SET VHS on all of the applications mentioned above.

See your Hazard distributor or write to the nearest office listed below for brochure DH-490.

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American Chain & Cable Company, Inc.

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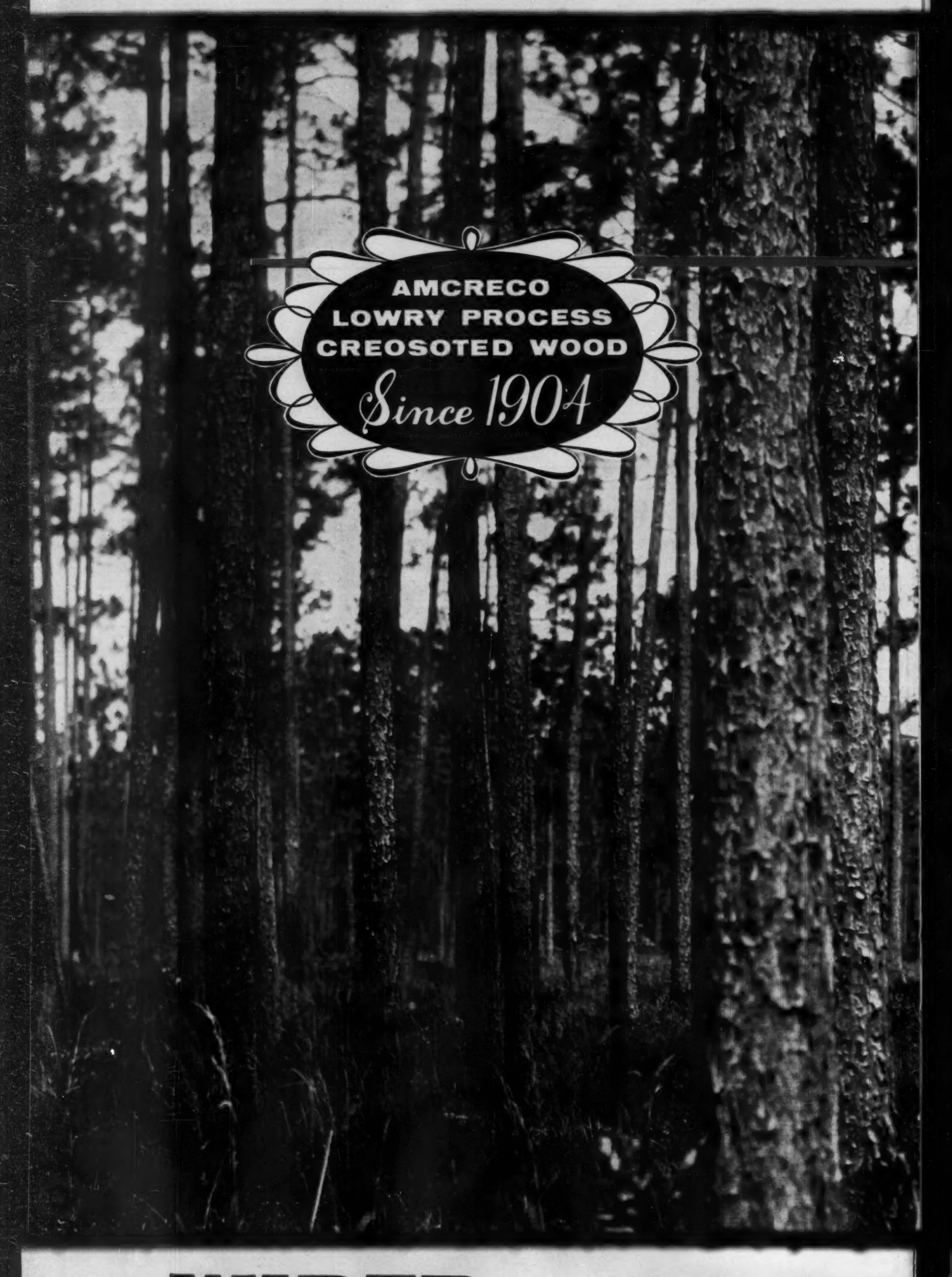
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Since 1904

50th Anniversary of
AMERICAN CREOSOTING COMPANY
Pioneers in Forestry as well as Wood Treatment

. . . for Lower Cost, Longer Lasting Wood Products

It has been estimated that the modern wood preserving industry, pioneered by the American Creosoting Company, has saved the nation the equivalent of 500 million acres of forest lands in the past 50 years. Great as this force has been, wood preservation alone was not enough to stem the tide of forest exhaustion. Additional measures were needed to extend the life of our forests and assure the nation of a plentiful wood supply.

The greatest conservation force is, and must continue to be, the forester and his science of forestry. Reduced waste of timber gave him the chance to prove that good forestry practices will win the battle against depletion.

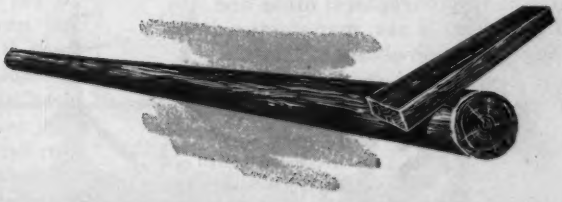
Just as it was the pioneer in wood preservation, American Creosoting Company was a pioneer in forestry. While the science of forestry was in its infancy, American Creosoting Company took a practical interest in the advancement of the science by purchasing large forest areas to make them available for the study and advancement of the practices of good forestry.

In this vast woodland laboratory, known as Satilla Forest, Amcreco has helped develop and carry out many of the scientific practices that are now in widespread use throughout private, industrial and government owned timber lands. Satilla forest is known and recognized by authorities as an outstanding example of forestry management. In addition to serving as a laboratory for the development of man's knowledge in forestry, Satilla has also provided Amcreco with a great amount of fine timber for treated poles, cross arms and other construction woods.

Hand in hand with its experiments in forestry, the American Creosoting Company has helped develop wood preservation to the fine art that it is today. The results of these efforts — wood, pressure treated in creosote by Amcreco, lasts for years and years with great strength throughout the life of the wood, and under many conditions, wood treated by Amcreco can be considered essentially permanent.

If you've never been an Amcreco customer — if you've never profited by our years of experience, strategically located treatment plants and sales offices, contact us on your next job. We would appreciate an opportunity to quote on your needs.

This year the United States Forest Service also celebrates its 50th anniversary. We are proud to share our birthday cake with them and to join the nation in thanking them for their invaluable contributions to conservation.



AMERICAN CREOSOTING COMPANY

Shreveport Creosoting Company
Colonial Creosoting Company
Federal Creosoting Company
Indiana Creosoting Company

AMCRECO
LOWRY PROCESS
CREOSOTED WOOD

Georgia Forest Products Company
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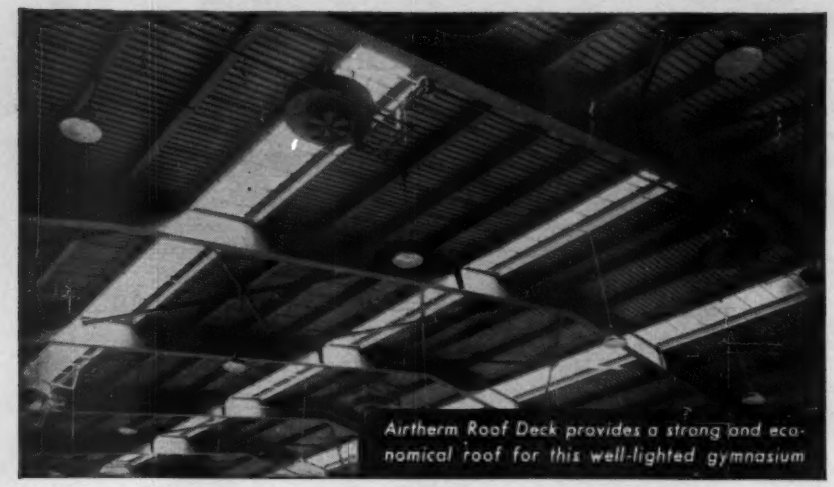
Georgia Creosoting Company
Kettle River Company

WIDER
Airtherm ROOF DECK



Airtherm Roof Deck provides a strong and economical roof for this well-lighted gymnasium

designed for a wide range of applications

Airtherm Steel Deck Sheets are furnished in 30" widths (the widest in the industry) with five ribs spaced on 6" centers. These ribs, 1⅝" deep, have a bearing surface of ⅝" and a top opening of only ¾" wide. These wider, self-aligning sheets mean fewer longitudinal laps with resultant savings in construction time and costs.

Wider, but so light one man can handle it, Airtherm Roof Deck speeds construction time . . . cuts construction costs

Airtherm Decking provides a strong, safe and durable steel roof in flat, pitched or arched construction. It has been proved in installations as side walls, partitions, canopies, and as a sub-base for concrete or aggregate flooring. This versatility, plus its attractive appearance, has led to many unique applications in a wide range of structures.

18-GAUGE AIRTHERM ROOF DECK	PROPERTIES
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Moment of Inertia (in.) 4	.263
Resisting Moment (in lbs.)	3960

To care for all contingencies relative to geographical areas and various purlin spacing, Airtherm Decking is also manufactured in No. 22 Gauge and No. 20 Gauge metal thicknesses.

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For more complete information consult our catalog in Sweet's 2dAi, or write . . .

Member: Metal Roof Deck Technical Institute

READER COMMENT

Congested Freeways

SIR: Your article on p. 34 of the March 31 issue about the Los Angeles Harbor Freeway was most interesting to me since I drive about 50 miles per day on our freeways. My speed averages under 30 miles per hour on these beautiful six and eight lane thoroughfares. At least five miles of the days trek from home to office and return is in first and second gear due to the overload of bumper-to-bumper traffic. I wonder how you got such unrealistic photos of empty freeways, unless they were taken at dawn. The freeways of Los Angeles reflect little credit on the engineers who planned them. For example, whose planning missed and resulted in a one-lane bottleneck for the past year at the juncture of the Santa Ana and Hollywood Freeway? Or the chronic bottlenecks at entrances and exits, or the bottleneck over the Cahuenga Pass? Whose boner has made the freeways inflexible so that they cannot be widened to take care of the incorrectly estimated traffic volume?

I think that ENR could well devote a feature to the miscalculations and errors in technique and judgment that are cast-in-concrete all over our famous freeway system, for here is certainly a very poor record of the highway engineer. Somebody has goofed—but will these goofings be repeated in the freeways under construction? There is a story!

LARRY SMITH
North Hollywood, Calif.

Ingenious Framing

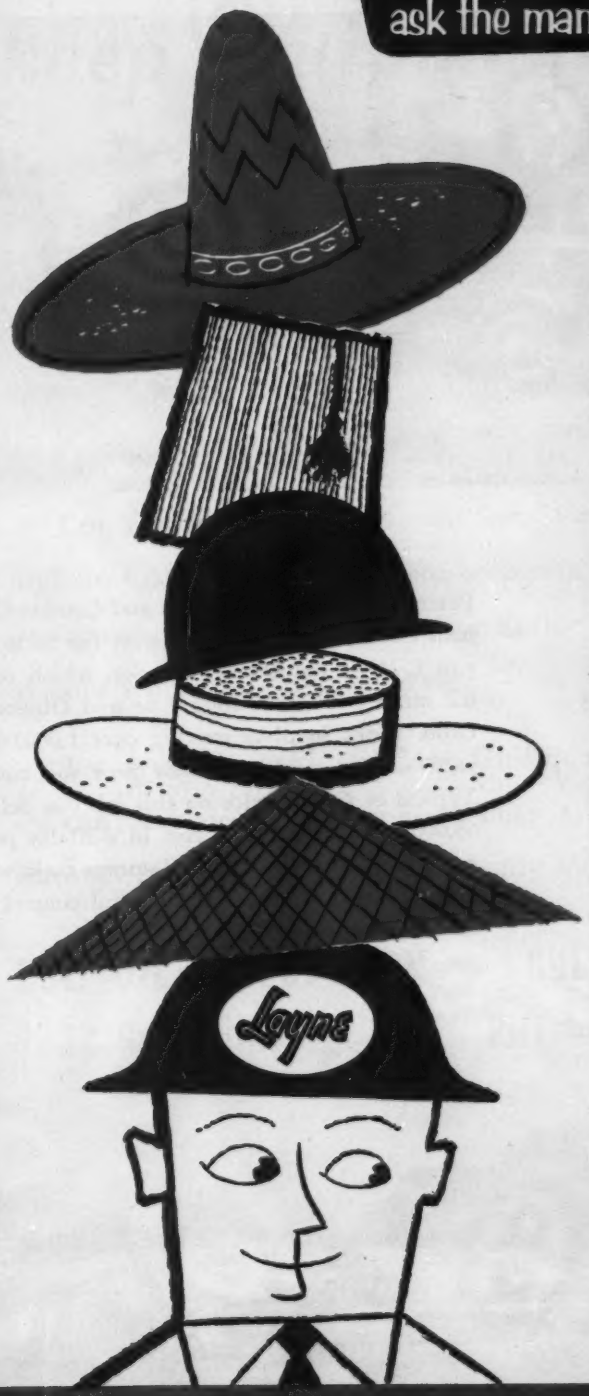
SIR: The hidden-arch space-frame spanning the San Mateo high school gymnasium (ENR March 24, 1955, p. 35) is an interesting application of the basket-handle arch principle introduced into bridge engineering by the writer (ENR Nov. 16, 1950, p. 26 and ENR Feb. 25, 1954, p. 46) and incorporated in the Rio Blanco River Bridge in Mexico. Application to building structures of "hipped plate" type in steel is ingenious.

It would be of value if further information were published as to the validity of the assumption of 50-50 distribution of roof load between the arch and the walls. The actual distribution should be in proportion to the relative stiffnesses of the two supporting systems, but would be complex to evaluate.

A very interesting vaulted roof is

(*Continued on page 12*)

ask the man from Layne



he carries knowledge from many countries under the hat he wears!

The pooled knowledge gained from experience the wide world over is carried under the hat worn by the man from Layne.

A problem solved in Paris, France, may be the answer to a similar problem in Paris, Tennessee. This hard earned factual knowledge is available without cost or obligation to industry, agriculture and municipality.

It's sound business judgment on any question relating to water to "ask the man from Layne."

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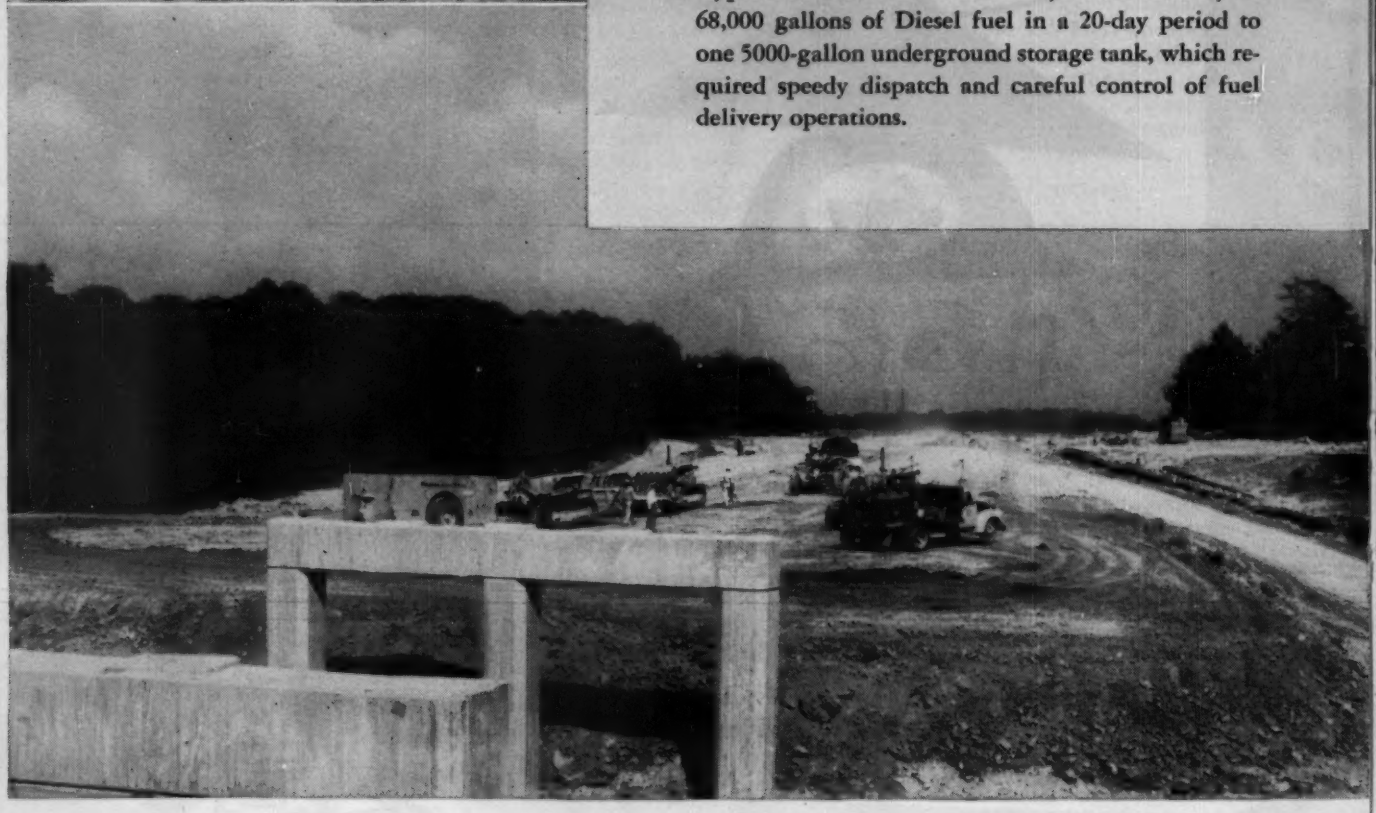
Peter Kiewit Sons' Company and Condon-Cunningham Company have the contract for Sections C-20 and C-21 of the Ohio Turnpike, which comprises 6.2 miles between Strongsville and Olmsted Falls, Ohio. Work involves moving over 1,000,000 cubic yards of dirt, with extremely poor soil conditions. Typical of Gulf service on this job was delivery of 68,000 gallons of Diesel fuel in a 20-day period to one 5000-gallon underground storage tank, which required speedy dispatch and careful control of fuel delivery operations.



READER COMMENT

and FINE SERVICE

keep equipment rolling

on the Ohio Turnpike Project

The Ohio Turnpike is another huge and important project where a large percentage of the participating contractors rely on Gulf to keep their equipment operating efficiently.

Contractors like Peter Kiewit Sons' Company and Condon-Cunningham Company, for example, appreciate the clean-burning, high-performance properties of Gulf gasoline and Diesel fuels—as well as Gulf's prompt delivery service.

Let us discuss with you how Gulf quality products and fine service can help on your next job. They are quickly available to you through more than 1400 conveniently located warehouses.

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GULF

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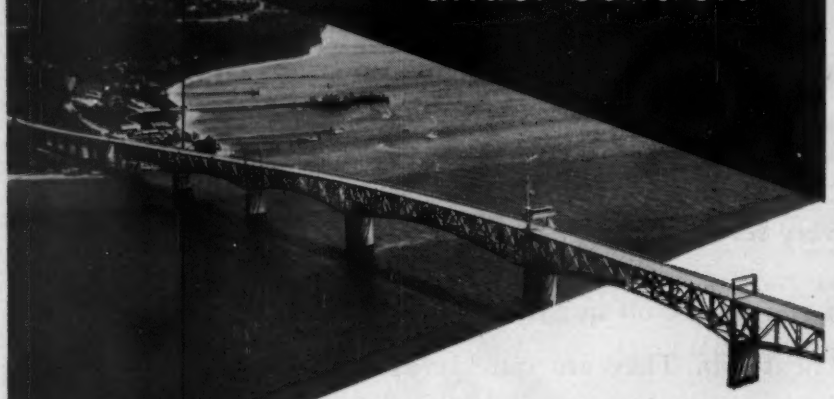
TALLER & COOPER
keeps your tolls
under control.



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•
TOLL COLLECTION SYSTEMS

TALLER & COOPER TOLL COLLECTION EQUIPMENT IS USED ON EVERY MAJOR TOLL FACILITY IN THE U.S.

READER COMMENT

possible with a variation of this framing by carrying the roofing horizontally between the ribs, and using four corner columns.

T. C. KAVANAGH
Praeger-Kavanagh
Consulting Engineers
New York, N. Y.

[EDITOR'S NOTE: According to the designer, Alexander D. Tarics, the rafter connections are such that each end can be considered pin-connected. Thus, an individual rafter is, in effect, a simple beam spanning from wall to ridge. As there is no direct vertical support at the ridge, simple statistics show that half the vertical load is resisted by the walls and half by the rafter thrust. And the rafter thrust is transmitted to the arch in the plane of the rafter. A primary advantage attributed to the design is the fact that it is statically determinant—made so by connections used. Thus it is not necessary to make such complex calculations as distributing load in proportion to relative stiffness of the supporting systems. The load distribution is, in fact, independent of the type of resisting structure in the plane of the roof. It could be a truss or heavy beam instead of an arch. And the arch used does not act in bending, due to its small stiffness in the direction of the load and the nature of the arch-rafter connections.]

CALENDAR

Society of American Military Engineers, annual meeting, Waldorf-Astoria Hotel, New York, N. Y., May 5-6.

Annual Conference for Engineers and Architects, Ohio State University, May 6.

Purdue Industrial Waste Conference, Purdue Memorial Union, May 9-11.

Heating, Piping and Air Conditioning Contractors National Association, annual convention, Shamrock Hotel, Houston, Texas, May 10-13.

Engineering Institute of Canada, annual meeting, Royal York Hotel, Toronto, Ont., May 11-13.

Michigan State College Centennial, engineering symposium on the application of automation to building design and construction, East Lansing, Mich., May 12-13.

New York State Society of Professional Engineers, annual convention and engineering industries exposition, Commodore Hotel, New York City, May 12-14.

National Materials Handling Exposition, International Amphitheatre, Chicago, May 16-20.

Structural Engineering Conference, University of Missouri, Columbia, Mo., May 20-21.

Air Pollution Control Association, annual meeting, Detroit, Mich., May 22-26.

National Rivers and Harbors Congress, national convention, Mayflower Hotel, Washington, D. C., May 30-June 1.

National Society of Professional Engineers, annual meeting, Bellevue-Stratford Hotel, Philadelphia, June 2-4.

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THE CONSTRUCTION WEEK

AREA STANDARDIZATION—It'll be worth watching the efforts of the Corps of Engineers toward area standardization of construction equipment.

What the Corps plans is this: In the European Theater, for instance, all equipment in a large area will be from one manufacturer; in another region, another maker, and so on around the world.

Idea is to reduce the vast inventories of replacement and repair parts currently required by the hodgepodge assortment of machinery operated by Engineer outfits.

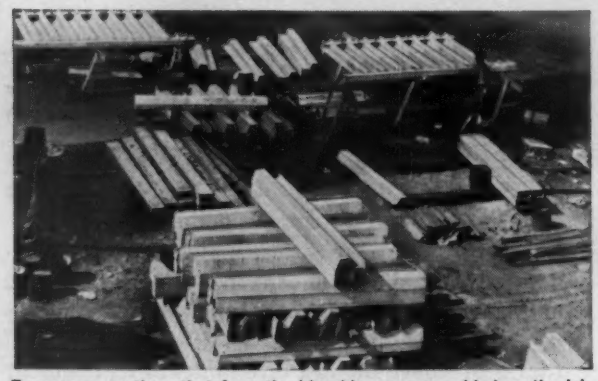
APPRECIATION OF SAFETY—Reportable accidents on the third tube project of the Lincoln tunnel—linking New York City with Weehawken, N. J. under the Hudson River—so far have been less than half what could have been expected on basis of past records. To show its appreciation, the New York Port Authority gave a dinner for its safety personnel, contractors and union representatives. George C. Stewart, general manager of the National Safety Council, appropriately was principal speaker.

DO IT YOURSELF FLUORIDATION—With vociferous objectors in many places blocking fluoridation of water supplies for reducing tooth decay, the inevitable happened last week. From Los Angeles under the trade name FluoriDental came announcement of a one-inch-long faucet attachment, said to add fluorides to the water in proper amount for preventing dental caries. Patent pending, the device will be available soon.

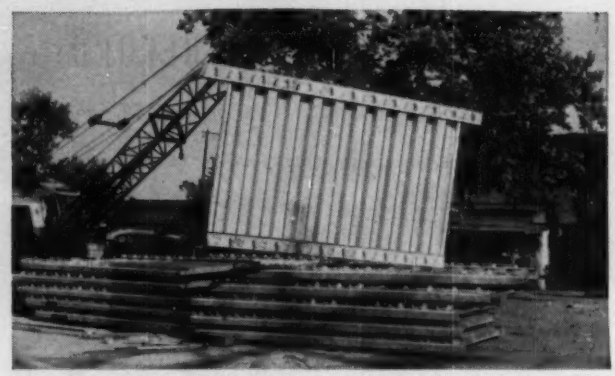
TIE-IN SALES CHARGED—Eleven contractors engaged in plumbing, heating, ventilating and air-conditioning work have filed a civil complaint in federal court in Seattle against 11 sheetmetal firms. The sheetmetal firms are charged with refusing to bid on jobs held by the plaintiffs, unless they are also designated as suppliers of fans, blowers and filters.

SPECIALIZATION DEFENDED—The growing trend toward specialization in the engineering professions got strong backing last week from Granville M. Read, du Pont engineer who was in charge of design and construction of the Hanford Works for plutonium production.

Declared Read at the diamond jubilee meeting of the American Society of Mechanical Engineers: "We hear sometimes that this is an age of over-specialization. While I agree that engineers should be well-rounded men, an integrated engineering effort demands specialized knowledge in a great many specific engineering fields."



Transverse sections that form the bin sides are assembled on the job near a stockpile of parts. Individual metal units that make up the transverse sections are delivered ready to be bolted together.



As sections are needed they are lifted into place without delay. They are set vertically at 10-foot intervals to provide, in effect, sturdy girders that keep the wall stable under load.

Wall takes shape as side panels are placed, and stringer units are added to form front and back of bins. Little excavation is required.

JOB-SITE "ASSEMBLY LINE" Speeds Retaining Wall Erection

Here is how good planning and Armco Bin-Type Retaining Walls can solve the problem of unstable slopes quickly, at low cost.

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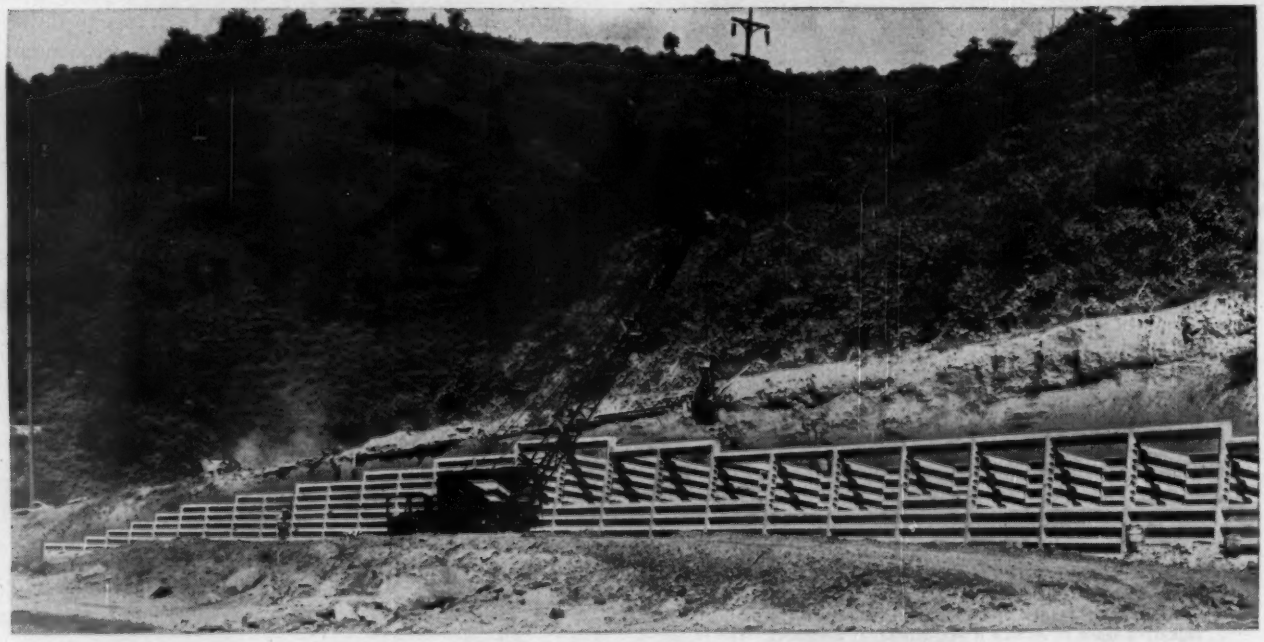

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WASHINGTON OBSERVER

Both FHA and VA are getting regular reports from field offices on the state of housing construction, community-by-community. Washington headquarters of both agencies now get reports on government commitments, and local officials' appraisal of signs of over-building.

First reports show only minor spots of over-building—these almost entirely in defense-affected communities such as those near AEC's Savannah River H-bomb factory, and its Portsmouth, Ohio, plant.

Otherwise, local FHA and VA officers see a solid housing market with no need at this time for any cutbacks based on Washington directives.

FHA and VA are giving field officers warning to be particularly careful of letting local commitments get out of line with the local market.

As of this week, local officials are in charge and any tightening will be done by them, not the Administration.

Bureau of Labor Statistics sticks by its forecast of 1.3 million starts for housing this year. That's the figure they had last November, despite predictions of 1.4 million or even higher from other sources.

•

Housing officials say that lenders should be the key to any slow-down in housing. Both local officials and Washington bureaucrats say that the market is sound as long as buyers find lenders willing to advance the money.

Tightening of housing starts should be left to the control of the market rather than arbitrary application of restrictions on a nation-wide basis, they contended. Recent steps toward raising interest rates generally would have some effect on mortgage money supply—and it's this kind of tightening that Administration officials prefer to direct action designed specifically to turn down the rate of housing starts.

•

Administration's top officials glow over outlook for solid prosperity for the rest of the year. A while back, they feared some kind of a slump during the last half of this year.

Now they're watching for signs of a speculative bubble in any segment of the economy that might be out of line. They theorize that any such speculation—as perhaps in housing or the stock market—might burst and thereby endanger the whole economy.

Hence they want to take small actions here and there as seen necessary. Such as raising the rediscount rate and the margin requirement on stock purchases. Hope is that if these steps work, a general across-the-board clamping down won't be necessary.

Purpose is to prolong the boom without forcing prices up—and this is exactly what they see happening.

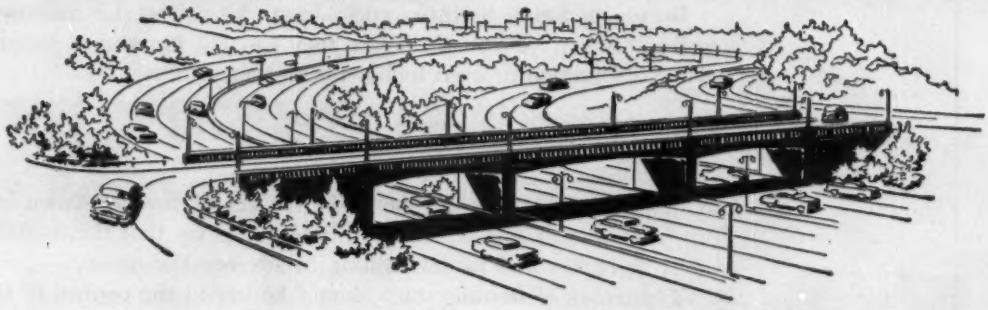
•

State and river commission officials are opposing the new anti-pollution law proposed by the Administration (ENR March 17, p. 21).

They are opposing proposals to give the federal agencies more power to act against polluters by taking them to court. Officials from Michigan, Ohio and California, testifying at a hearing held by the Senate public works subcommittee, contended that passage of any federal law tends to reduce state authority and results in less effective action than when states are in control.

Senators also sharply questioned features of the new law, indicating they were not inclined to go along 100% with the bill being backed by the Public Health Service.

Whatever the size of an expanded highway program



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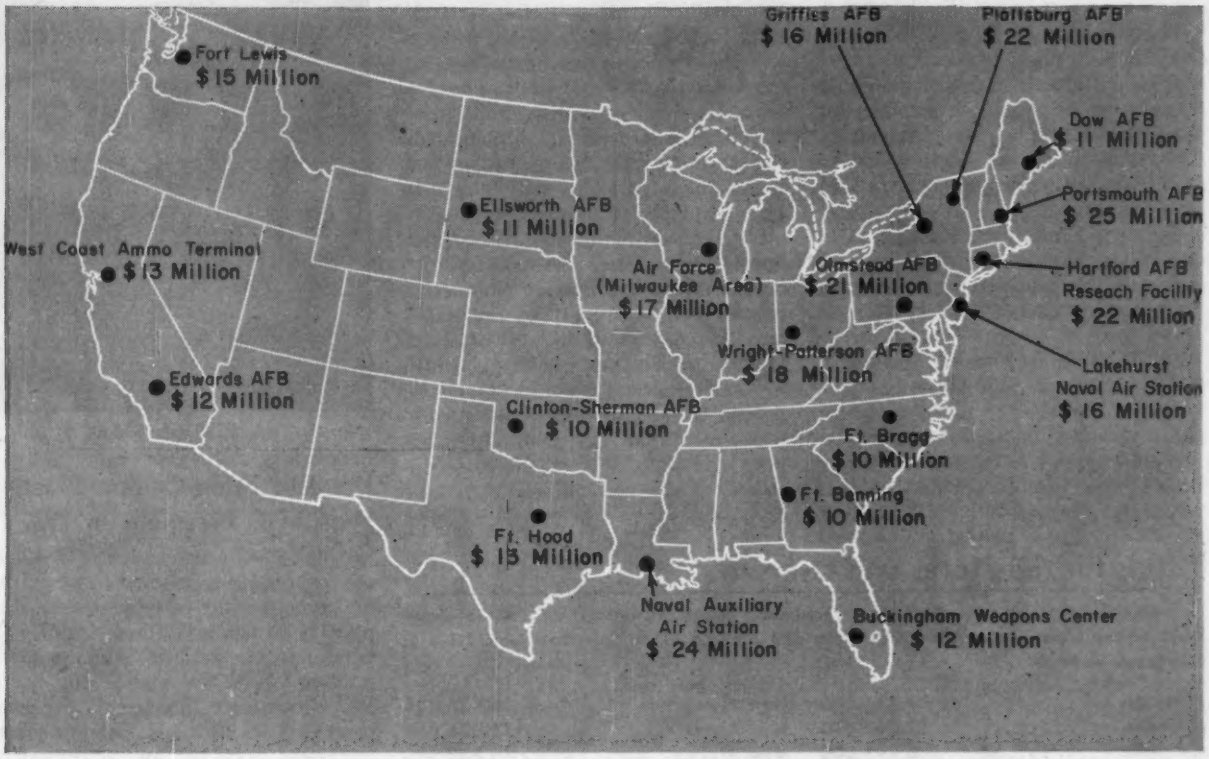


MAJOR PROJECTS in the Defense Department's construction planning include these expenditures in the U. S. With smaller jobs and overseas projects they add up to a blueprint for . . .

A Boost in Military Construction Spending

The Defense Department last week asked Congress to authorize $2.35 billion of new military construction—more than twice the amount requested last year. Congress is sure to approve most of the projects in the bill, including the biggest part of $330 million for family housing.

An appropriation bill for money to carry out the new construction will go to Congress later. The Defense Department hasn't started to write an appropriation bill, but it has a good idea of what the total will be. President Eisenhower in his budget message estimated that $1.9 billion of new money would be needed.

Last year Congress authorized $1 billion of projects and voted $800 million of cash, but the larger amounts this year don't point to a big jump in military construction.

• **Spending to go up**—Actual spending by the military services for construction will probably rise 20% to 25% in the next fiscal year to about $1.7 billion and remain close to that level for another year. Then, spending might drop off to a much lower rate, under present plans. Any change in these plans would be upward, not downward.

The pickup in contract awards for military projects in recent months bears out the prediction of a higher spending rate in the year ahead. Awards are expected to continue in good volume.

Besides authorizing $2.35 billion of new projects, the bill proposes to cancel all unused authorizations—with certain exceptions—made before Oct. 1, 1950. There is no solid figure on what those old proposals amount to, but the total reportedly exceeds $800 million. This would come out of the present Defense Department backlog of $2.1 billion in authorized projects that have never been financed.

At present, the Defense Department has more than $1.5 billion of funded projects that have not yet been placed under contract. This backlog of unobligated funds goes down each month as new projects approach the construction stage.

In its new authorization bill, the Defense Department named 360 projects that it wants to build in 47 states and the District of Columbia. Not named are many additional projects for which authorization is requested.

State dollar totals in the table (see page 22) cover only the named projects. Omitted from these figures are additional large amounts for unidentified projects inside the country, including $173 million for projects in various unnamed locations.

As one explanation for not specifying the sites of these jobs, the Defense Department says that land will have to be bought in some places, and it doesn't want to start real estate speculation in the areas.

Adding this sum to the figures for named projects, the total disclosed construction request for the continental U.S. increases to more than $1.3 billion. Biggest part is for the Air Force. Also included is $56 million for a new building to house the Central Intelligence Agency in or near Washington, D. C.

(Continued on page 22)

. . . Military construction

• Overseas—For requested overseas authorizations, Defense named 36 locations for more than $150 million of construction but did not specify the sites for projects exceeding $435 million of which only $9 million carried the classified label.

This is the only classified item that appeared in the Defense Department listing. The bill, however, asks nearly $400 million for classified construction. Most of this construction would go to the two older services—$234 million to the Army and $157 million to the Navy. It's anybody's guess how much of the classified work is slated for the U. S., Canada, Alaska or overseas.

Of the family housing requested, $255 million is for 17,000 units in the U. S. Another $75 million is for family housing overseas.

Congress will do better for family housing this year than it did last year when it authorized only $150 million of a $350-million program and then trimmed its appropriation to $75 million. The Defense Department has firm facts to back its housing plea this time, and Congress is more impressed with the need for family quarters to keep trained men in military service.

In fact, nearly all requested projects will stand on stronger factual footing this year than in the past. The Defense Department and the three services have improved the backup data and planning estimates for the projects being presented. They will be able to give the kind of information recommended a year ago by an advisory committee to the Secretary of Defense.

At that time, a construction activities working group of the Secretary's advisory committee of fiscal organization and procedures said that accounting and reporting systems should be revised to give management a complete picture of programming, planning and process for the entire construction program and for each base or station.

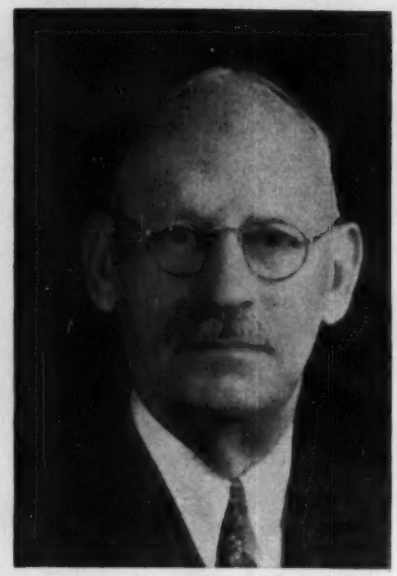
Totals for the States and Overseas

Projects for which the Defense Department asked authorization fall in every state of the union except West Virginia and include major overseas jobs. Here is the break-down.

Alabama	$ 16,351,000	New Hampshire	$ 26,426,000
Arizona	17,767,000	New Jersey	29,654,000
Arkansas	6,293,000	New Mexico	16,809,500
California	124,723,100	Nevada	8,307,500
Colorado	13,075,000	New York	46,707,000
Connecticut	23,196,000	North Carolina	33,058,500
Delaware	7,577,000	North Dakota	10,974,000
Florida	62,592,100	Ohio	31,923,000
Georgia	36,813,000	Oklahoma	24,014,500
Idaho	5,961,000	Oregon	2,637,000
Illinois	10,621,000	Pennsylvania	25,318,000
Indiana	559,000	Rhode Island	9,453,000
Iowa	290,000	South Carolina	30,504,000
Kansas	31,148,500	South Dakota	11,246,000
Kentucky	25,334,000	Tennessee	4,979,000
Louisiana	36,937,000	Texas	72,175,000
Maine	19,421,000	Utah	3,607,000
Maryland	36,332,000	Vermont	213,000
Massachusetts	33,725,800	Virginia	63,560,000
Michigan	15,899,000	Washington	32,560,000
Minnesota	2,623,000	Wisconsin	17,827,000
Mississippi	7,288,000	Wyoming	1,355,000
Missouri	13,259,000	District of Columbia	8,396,000
Montana	10,161,000	Unspecified locations	172,972,000
Nebraska	6,732,000		

OUTSIDE CONTINENTAL UNITED STATES

Alaska	$ 58,526,000	Mariana Island	$14,996,000
British West Indies	91,000	Marshall Islands	4,411,000
Canal Zone	5,582,000	Midway Islands	1,821,000
Cuba	4,351,300	Newfoundland	8,589,800
French Morocco	4,807,100	Okinawa	43,983,000
Hawaii	13,890,600	Philippine Islands	32,930,100
Iceland	3,793,000	Puerto Rico	5,870,000
Italy	155,000	Wake Island	3,459,000
Japan	12,182,300	Unspecified locations	427,278,000
Johnston Island	182,000	Classified locations	9,104,400



A. P. Greensfelder

Head of Fruin-Colnon Dies; Was AGC President in 1931

Albert P. Greensfelder, 75, St. Louis contractor and a national figure in engineering and construction over the past half century, died April 17. Chairman of the Fruin-Colnon Contracting Co. at the time of his death, Mr. Greensfelder had joined the company in 1906 as a construction superintendent. He became its president in 1927.

A civil engineering graduate of Washington University in his home city, he spent the first few years out of college with the St. Louis Terminal R. R. Association. Beginning early a life-long devotion to public service in the interests of civil engineering and construction, Mr. Greensfelder was president of the Engineer's Club of St. Louis in 1914. In 1918 he was president of the old American Society of Engineering Contractors, and from 1925 until 1928 he was a member of the American Construction Council, one of the first organizations to give the construction industry a voice in national affairs.

Long active in the affairs of the Associated General Contractors of America, Mr. Greensfelder was its president in 1931. At the same time and until 1935, he was vice chairman of the Construction League of the United States and chairman of its Construction Code Authority. He later was appointed as vice chairman of the NRA Construction Code Authority.

Mr. Greensfelder also established and endowed the Construction Engineering Prize awarded annually by the American Society of Civil Engineers, of which he was long a member, and an honorary member since 1947.

Partnership Power

Electric utilities offer to prepay power costs of multi-purpose dams

The private electric power industry in the Northwest has proposed a plan to get much-needed hydro-power projects built. It's a new twist on the Administration's "partnership program" under which local interests underwrite the cost of the power part of multi-purpose dams and the federal government foots the bill for reclamation and recreation benefits.

The new proposal—already written into a bill introduced by Rep. Sam Coon (R., Oreg.)—would have the utilities advance at the outset of construction the entire cost of the turbines and generators in return for a contract under which the government guarantees delivery of the power the dam will produce.

Portland General Electric, Pacific Power & Light, and Washington Water Power Co. offered the plan as a way to get the $310-million John Day Dam on the Columbia River in Oregon built. They're willing to put up $273 million of the total cost and turn over ownership of the project to the government in return for long-term guarantees of the power it produces. The government's share of costs would run only about $37 million under this plan—yet it will build, own and operate the project.

• **John Day plans are big**—The Corps of Engineers would have charge of the project. It would do the designing and let the contracts. Power capacity would be 1,105,000 kw. There would be 13 generators, each rated at 85,000 kw.

The concrete dam, with a head of about 107 ft, would create a reservoir sufficient to make the Columbia navigable from its mouth to Pasco, Wash.—328 mi. It would store almost a half million acre-ft of water.

The John Day project may usher in a new concept in power project financing. When the Democrats were in the White House, large multi-purpose water projects were financed entirely with federal money.

Under the Republicans for the last two years, there's been a policy of "partnership" in which the Administration has given first crack at power plant construction to local organizations if they are ready and willing to finance such portions of large multi-purpose projects.

• **Authorizations but no construction**—Several partnership projects have been authorized by law in the last two years, but none of them has yet got to the stage where construction is imminent. Those authorized were the 75,000-kw Markham Ferry project, the 1.2-million-kw Priest Rapids project and the 240,000-kw, 5-dam Coosa River project.

Here are some of the key features of the new plan:

• Local utilities, municipalities, public power districts—any organization qualifying as a power distributor—that are willing to put up some money will share in the power benefits in accordance with the size of their contributions. Costs to be met by such contributors are those allocated to power in a multi-purpose project. The government will finance completely those costs allocated to navigation, irrigation, flood control and recreation.

• The non-federal share of costs will be put up at the start. The utilities involved in the John Day plan call this "prepayment of power." That is, they pay a lump sum at the beginning for all the power they expect to get over the lifetime of their contracts.

• If costs should increase, the non-federal participants would foot the bill up to a certain point. That point would be reached when the damsite has been chosen and fully explored. The utilities backing the John Day plan know that once the axis of the dam has been established only unusual circumstances, such as strikes and accidents, could raise costs substantially over reasonably reliable estimates.

AEC Approves Ebasco For Dixon-Yates Job

The Atomic Energy Commission has approved Ebasco Services, Inc., as architect-engineer and construction management contractor for the $100-million steam electric generating plant that is being built by the Mississippi Valley Generating Co. at West Memphis, Ark.

The decision was made shortly after a settlement was reached between Ebasco and Electric Energy, Inc. on Ebasco's payment for services rendered during construction several years ago of the AEC's electric generating plant at Joppa, Ill. Under the settlement, Ebasco relinquished all net profit from the Joppa job.

AEC noted that Ebasco's role at the MVGC plant would involve no construction work with its own forces. Acting as architect-engineer for MVGC, Ebasco already has completed preliminary work on the plant site which is on the Mississippi flats across the river from Memphis, Tenn.

Upper Colorado

Authorization bill wins Senate approval; House won't act before June

Senate passage of the $1.5-billion Upper Colorado storage bill last week turned the spotlight on the House Interior Committee for the next development on the Administration's biggest package of natural resources legislation.

The House irrigation and reclamation subcommittee finished open hearings on the legislation on Friday, but there is little chance of it getting down to consideration of the bill in executive session until June. The interior subcommittees have a full schedule until that time, and since almost every member of the full committee sits as a member of the subcommittee no action can be taken until the committee gets some free time during which to schedule executive sessions.

This committee is where the legislation ran into trouble last year. It was reported out by a bare 13 to 12 vote after 14 days in executive session—only to be turned down in the House because of the controversial Echo Park Dam.

Chairman Clair Engle, Democrat of California, already has served notice that he will oppose Echo Park. He says the House will not accept it and to leave it in the bill would be to invite rejection of the measure.

The projects that stand the best chance of staying in the House bill are the mammoth Glen Canyon Dam and power project and the 11 participating projects, all approved by the Interior Department.

Projects added last year by House or Senate committees that stand good chances of being included are the Flaming Gorge reservoir and power dam on the Green River above the Echo Park site and the Curecanti project in Black Canyon on the Gunnison River in Colorado.

The Senate struck out the Cross Mountain project on the Yampa River in Colorado—a companion project to the Flaming Gorge—and substituted the smaller Junniper project. The House is almost sure to drop Junniper, but there is some question as to whether it will restore the Cross Mountain.

There is a growing feeling among proponents of the project that it may be better to take what can be pushed through Congress this year in order to get the project started than to risk having the entire legislation blocked because of some controversial features.

Libby Dam Held Up

IJC defers consideration of U. S. application while Canada studies river use

Proposed construction of the $260-million Libby Dam in Montana has run into an indefinite delay.

Canada is investigating possibilities for use of Kootenay River waters in British Columbia, upstream from the site, that may seriously affect the U. S. project. Until Canada decides what to do, the International Joint Commission is deferring consideration of the U. S. application for the project.

One Canadian proposal would divert part of the Kootenay's flow into the Columbia River at Canal Flats, near the source of the Columbia, to generate more power in Canada. Such diversion is permitted under the Boundary Waters Treaty of 1909, but it would substantially reduce the amount of water available for storage and power generation at the Libby site.

Present U. S. plans contemplate an ultimate installation of 800,000 kw at Libby.

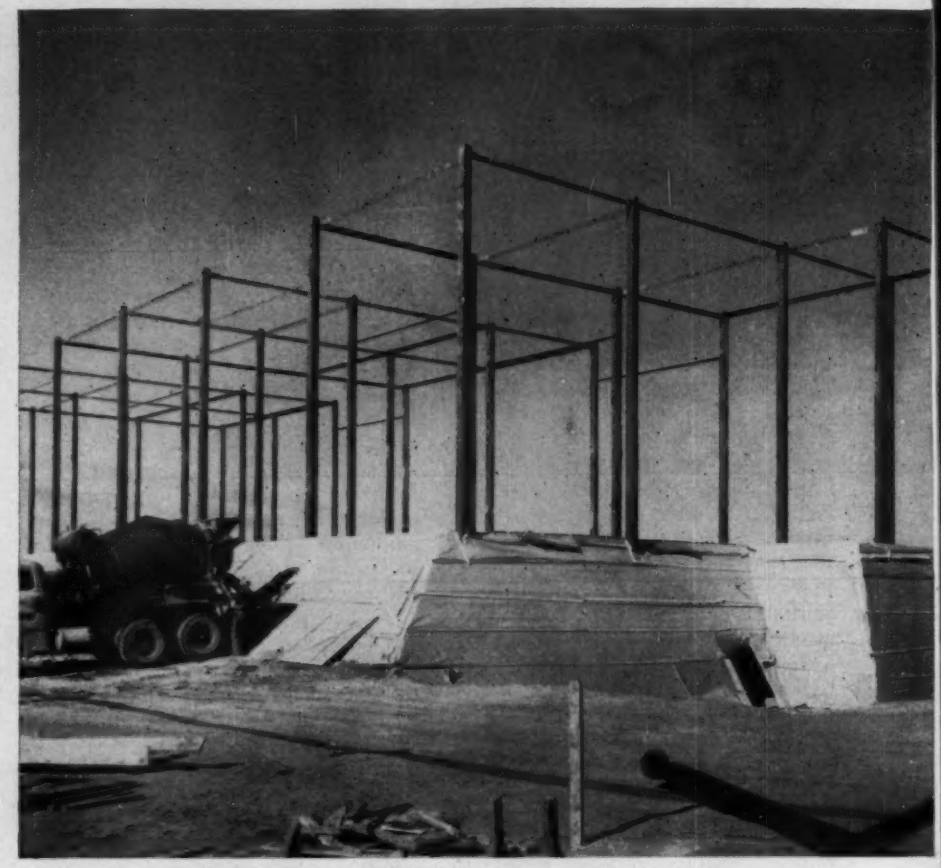
• **Alternate diversion proposals**—Canada is studying all parts of the Columbia River basin north of the international boundary. Alternate possibilities for diversion of the Kootenay are included in the study. Still to be determined are the engineering and the economic feasibility of the various proposals. The investigations will take some time.

Both the Truman and Eisenhower administrations have backed U. S. federal construction of the Libby project.

The present U. S. proposal calls for a dam to be 410 ft high, capable of impounding nearly 6 million acre-ft in a 95-mi reservoir that would extend 42 miles into Canada, to the site of the Bull River Dam proposed by the Canadians.

• **Unsolved problem**—Besides deferring action on Libby the IJC is turning back to the U. S. and Canada its first unsolved problem involving boundary waters.

Years of negotiation have failed to work out a mutually acceptable formula for apportioning the waters of the Waterton and Belly Rivers between the State of Montana and the Province of Alberta (ENR Oct. 5, 1950, p. 25). The commissioners of the two sections of the International Joint Commission are now reporting the impasse to their respective governments.



COMPACT ENCLOSURE heated by salamanders made it possible to cast the concrete slabs for the six floors and roof of the buildings in near-zero temperatures.

Lift-Slabs Hit Record Height

Canadian builders have set a new height record for lift-slab construction in Calgary, Alberta. They lifted the roof slabs for two six-story apartment buildings 64 ft.

The two buildings are among the six structures comprising Rideau Towers. Architect for the job was Peter Caspari, F.R.I.B.A., of Toronto and Calgary; structural engineer was W. V. Zinn & Associates, Ltd. of Toronto with W. V. Sefton as chief engineer; contractor was Bird Construction of Calgary; and Canadian Lift Slab Co. of Winnipeg carried out the lifting.

Each of the buildings is 156x63 ft in plan and contains 56 apartments. The slabs are 8 in. thick and were erected on hollow steel columns 8 and 9 in. square. Columns were composed of two 8x8-in. angles welded together.

The columns were erected with temporary angle bracing at the tops to minimize the unsupported length. Around each column a specially made cast steel collar was provided for lifting each slab and was incorporated in the slab of concrete.

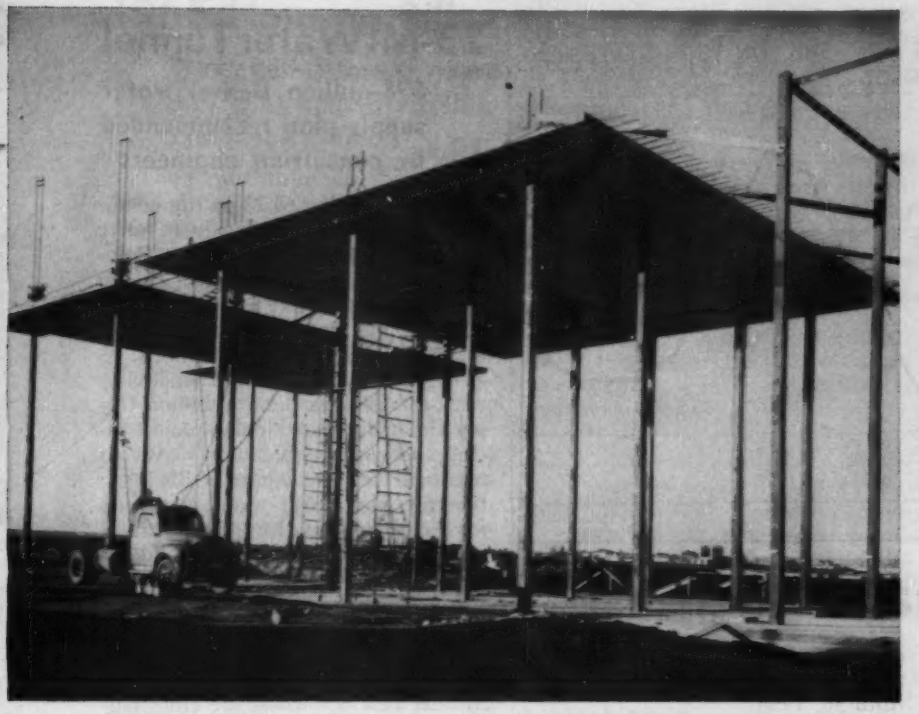
The seven slabs for the six floors and roof of each building were cast one on top of the other on the basement slab, top surfaces being machine-troweled and brushed with liquid wax to prevent sticking. Concreting took place in winter. The lift-slab method proved particularly advantageous in that season because the concrete work could be carried on under a compact, heated enclosure.

Hydraulically operated jacks with threaded rods extending into the collars lifted the slabs into position. Two separate lifts were employed to avoid columns with too great unbraced height.

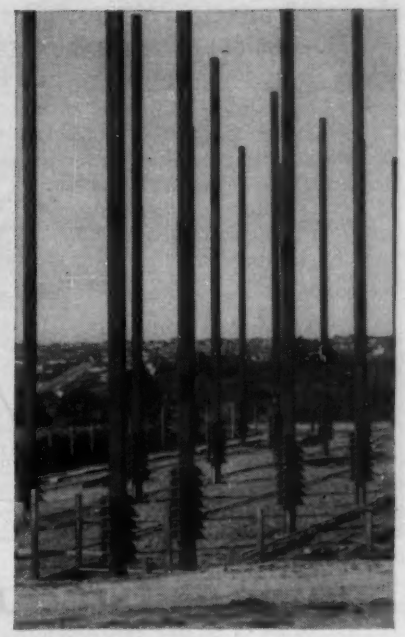
Two separate lifts were employed.

While the third, fourth, fifth floors and roof were parked temporarily at the top of the first 42-ft length of column, the first and second floors were fixed into place. Then, an additional length of 24 ft was welded to each column, and the upper story slabs were raised to their final positions.

The slabs were cast in two sections with 3-ft gaps between. The gaps were filled in when the slabs had been lifted into position. The builders were limited to an 18-column lift because



ROOF SLAB stops 42 ft in the air while additional 24-ft lengths are welded on each of the columns.



COLLARS of cast steel at the bottom of each column were incorporated into the slab concrete for lifting.

18 jacks currently are the maximum that can be controlled satisfactorily.

When the slabs were in position, the collars and steel plates to form seats for the floors were welded to the columns.

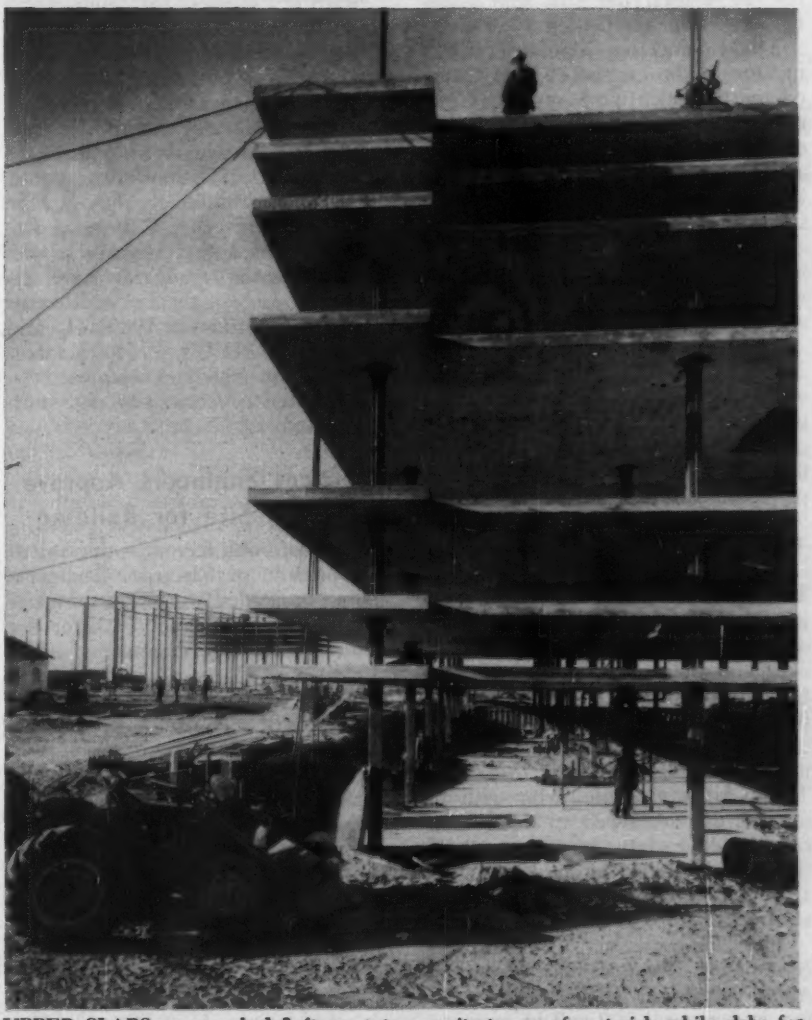
The lift-slab method proved to have important advantages on this job:

- It was fast.
- Formwork was almost entirely eliminated.
- All heating and electrical work was incorporated in the slabs on the ground.
- All concreting was done on the ground, permitting work to be carried on in below-zero temperatures by heating the ground floor area.
- Beams were entirely eliminated giving the architect greater freedom.
- The smooth finish of the slabs eliminated plastering of ceilings.

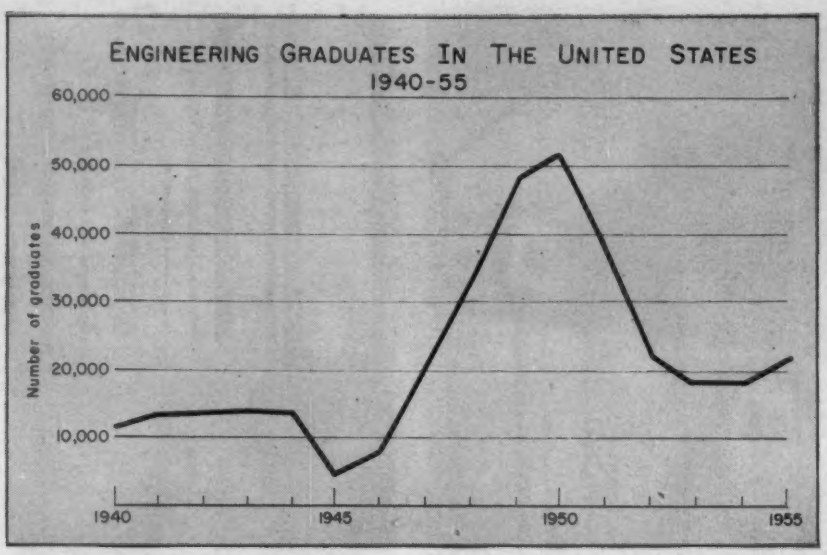
The builders estimate that lift-slab construction saved more than 30% of the cost for the structural work.

From this job, the contractor learned a number of ways to improve efficiency on lift-slab construction.

- All bays should be about the same size because jacks tend to lift smaller bays more quickly than heavier ones.
- It should be possible to lift two or even three slabs at a time.
- It is quicker to park the slabs in contact with each other.
- The cast steel collars are too expensive. Structural engineers say they have devised a collar that will cost only one-third as much.



UPPER SLABS were parked 3 ft apart to permit storage of materials while slabs for lower stories were placed in position.



Engineer Graduates Increase

The number of engineering graduates from U.S. colleges this year will be substantially larger than the very low 1954 total but still well below the peak level reached in 1950.

The Engineering Manpower Commission of the Engineers Joint Council and the Scientific Manpower Commission jointly estimate that 21,569 engineers of all types will be graduated this year from colleges accredited by the Engineers Council for Professional Development.

Last year, a total of 19,707 engineers were graduated. In 1950, there were more than 50,000 engineering graduates.

Civil engineers will account for 3,840 of the 1955 total compared with 3,597 in 1954. Mechanical engineering graduates number 5,250; electrical, 4,835; chemical, 2,050; industrial, 1,290; aeronautical, 730; petroleum, 640; general engineering, 540; metallurgical, 450; architectural, 440; mining, 216; and geological, 210.

Of the 1955 total, about 7,200 or 33% will be ROTC graduates subject to call for active military service on short notice. The Navy will graduate and commission about 1,200 engineers. All will be called to active duty upon graduation.

The Army will graduate and commission 3,000 engineers this year. Those Army graduates who wish to do so will be allowed to defer their call to active duty to some time in the period which begins 12 months after graduation and ends 24 months after graduation.

The Air Force will graduate and commission about 3,000 engineers. About 1,700 will go into flight training, and about 1,300 will be assigned engineering or technical duties. All of these graduates will be called to active duty between May 1, 1955, and April 30, 1956.

Starting salaries for engineering graduates continue to move higher. The Columbia University School of Engineering reports its June graduates are being offered record-high starting salaries of about $400 a month compared with $375 for 1954 graduates and $275 in 1949.

Dean Thorndike Saville of the New York University College of Engineering noted that starting salaries for engineering graduates have increased in each of the last eight years with the exception of 1949. He said a survey of NYU's 1954 graduates showed that graduates employed by private industry received average starting salaries of $378.

Electrical Engineers Approve Pittsburgh Site for Building

The board of directors of the American Institute of Electrical Engineers has recommended acceptance of a site in Pittsburgh's Schenley Park for the location of the new engineering headquarters.

The recommendation was made at a meeting in St. Petersburg, Fla. It was the first of the five engineering societies which will share the new headquarters building to give formal approval to moving the headquarters away from New York City.

Pittsburgh civic interests have pledged a total of $2 million to help relocate the engineering center there. The most recent addition to the fund was a $500,000 pledge from the Mellon family to be used by the five societies for research (ENR Apr 21, p. 23).

23-Mi Water Tunnel

$98-million Denver water supply plan recommended by consulting engineers

The long-proposed 23-mi tunnel under the Continental Divide to carry water from the Blue River on Colorado's western slope to Denver on the east is the key feature of a $98-million water supply program recommended for the city by consulting engineers.

Legislation passed by the Senate last week to authorize the $1.5-billion Upper Colorado River storage project includes provisions enabling Denver to negotiate with the Bureau of Reclamation for Blue River water now used for power at Green Mountain Dam, a part of the bureau's Colorado-Big Thompson project.

Also, Denver has a suit pending for adjudication of Blue River water rights in relation to the Green Mountain project. This district court action, instituted Feb. 3, follows the city's failure to satisfy its claims before the Colorado Supreme Court last fall (ENR Nov. 4, 1954, p. 28). The city is basing its action on the Colorado River Compact, which specifies that water used for power generation "shall be subservient to use and consumption of such water for agricultural and domestic purposes."

Report on a two-year study by Alvord, Burdick & Howson, Chicago consulting engineers, recommends that work be started under a proposed $70-million bond issue that is expected to be submitted to Denver voters this summer.

The Chicago engineers estimated the tunnel itself would cost $36.6 million, with another $3.4 million for auxiliary facilities. The project would include a diversion dam at Dillon, replacement storage at Williams Park Reservoir and improvements to the channel of the north fork of the South Platte River.

The report to the Denver Water Board also recommended that the city spend $9.2 million for construction of a new filter plant near the mouth of the Platte Canyon east of Kassler Reservoir. This would be built in two units, the first in 1958, and would have a capacity of 2,000,000 gal.

Another recommendation called for an addition to the Moffat filter plant at a cost of $1.5 million. However, contracts for this project already are scheduled to be advertised for bids on May 1.

It would cost another $48 million for construction of mains, distribution lines and improvements to existing facilities.

1955 Housing Bill

New bill provides more flexibility in assisting slum clearance projects

The Administration this week handed Congress a 1955 housing bill that would authorize 70,000 public housing units in the next two years and grease the wheels for government programs of slum clearance, urban renewal and home mortgage insurance.

Top Democrats and Republicans on the Banking Committees of the House and Senate were consulted during the drafting of the bill. Democratic chairmen of the two groups introduced the legislation by request with the comment that they approved most of it.

The President's public housing program has a better chance in this Democratic Congress than it had last year when the two houses compromised on 35,000 units for one year under a tightly restrictive formula. President Eisenhower had asked for authority to start 140,000 in four years.

The restrictions make it almost impossible to complete contracts with local public housing authorities for the authorized units by June 30, the end of the fiscal year. The new housing bill proposes to extend the time limit for another year and to ease the restrictions for the additional public housing that would be authorized: 35,000 units in fiscal 1956 and 25,000 in 1957. A two-year time limit would be granted also for each of those annual quotas.

The bill would modify the present requirement which severely limits new public housing to low-income families displaced by governmental action. Under last year's law, a city has to certify: (1) that it needs the housing for families to be displaced by federally aided slum clearance projects already under way, and (2) that the number of units won't exceed the total of eligible families that cannot be housed elsewhere.

The bill would let the community build public housing units to take care of the full number of low-income families that will be displaced by public improvements, without regard to other housing that might become available. It also would permit public housing in any city that either had started a federally assisted slum clearance project or had obtained federal approval of a workable program for urban renewal.

• **Capital fund increases**—Urban renewal would get a boost, too, by an increase of $400 million in the capital grant fund. This is the money that the federal government uses to pay two-thirds of the net, or write-down, cost to cities for preparing slum clearance and urban redevelopment sites. The $500 million that Congress voted in 1949 is nearly used up.

Another assist would be given to redevelopment projects by a big increase in the mortgage amount that FHA can insure for a private developer under Section 220. The new bill would raise the mortgage ceiling from $5 million to $50 million for a private corporation building apartment housing in slum clearance or urban renewal areas. This is the ceiling at present in effect for public corporations.

For other types of FHA-insured apartment financing, the limit on a single project would be increased from the present $5 million to $12.5 million. This change would reduce the need for questionable splitting of large developments into separate projects.

HHFA Move Gives Builders Liberal Mortgage Insurance

The Housing and Home Finance Agency last week broadened the money-raising possibilities for private builders in 33 urban redevelopment projects. HHFA gave blanket certification to the 33 projects for liberal FHA mortgage insurance under Section 220 that Congress added to the housing law last year.

Basically, the certification improves the borrowing potential of private redevelopers by increasing the FHA appraisal value of new or rebuilt housing in the project areas. Until now, FHA has had to appraise construction in rundown areas on the basis of the conditions existing in the deteriorated neighborhood.

Under Section 220, FHA can now appraise new and renovated properties on the "favorable assumption" that the community will carry out all the neighborhood improvements to which it is committed in the redevelopment plan.

Builders can get favorable terms under Section 220—up to 95% of the first $9,000 on family units. The mortgages, too, can carry long maturities on both apartment houses and single-family homes.

All of the first 33 projects to be certified had contracted for federal aid or received federal approval for slum clearance and urban redevelopment under the 1949 law that offered such assistance to cities and towns. Several additional projects soon will be certified, and many more will be declared eligible as HHFA and FHA complete detailed studies of projects on the books.

Chicago Will Invite Bids On Six Miles of Tunnels

On May 20, the Chicago Department of Public Works will accept bids for the construction of 31,880 ft of 16-ft and 20-ft dia tunnels, plus 450 ft of smaller tunnels, seven workshafts and one bypass structure.

The tunnels are part of the Windy City's $85-million program to build its 950-mgd central district filtration plant in Lake Michigan just north of Navy Pier (ENR June 3, 1954, p. 23). They will connect the filtration plant with existing Chicago Ave. and Wilson Ave. tunnels and pumping stations.

The tunnel construction is divided into three sections. Qualified contractors will be permitted to bid on any one section, combination of sections or on all three. One 80-ft length of 16-ft tunnel and 250 ft of 8-ft tunnel will be in clay. All other tunnel construction will be in rock.

No estimate of the cost of constructing the three tunnel sections is available. The total amount of bid-deposit required for all three sections, however, is $385,000.

Low bids submitted in August 1953, for the 6 miles of tunnels and similar appurtenances totaled $14.8 million (ENR Sept. 3, 1953, p. 23). Contracts were not awarded, however, because the city's right to build a filtration plant at Navy Pier was being questioned in the courts.

Bids Called for First Unit Of Cowlitz River Project

Bids for construction of the Mayfield hydroelectric dam and powerhouse on the Cowlitz River, the $45-million first unit of a proposed $146-million development, have been called by the Tacoma, Wash., Board of Contracts and Awards for opening May 27.

Work will consist of constructing a concrete arch dam with gravity wings and thrust blocks. The dam will be 185 ft high, 850 ft long and have a 205-ft spillway, a powerhouse, two tunnels, forebay and penstocks.

The powerhouse, a few hundred feet downstream from the dam, will be 110x270-ft, with a reinforced concrete substructure and a steelframe and concrete superstructure.

One 25-ft unlined tunnel, 600 ft long, will divert the river during construction. A 37-ft lined tunnel will extend 850 ft from the reservoir to a forebay which will be excavated in solid rock above the powerhouse.

The Mayfield reservoir will extend 13 mi. upstream to Mossyrock, where a second dam will be constructed under a later contract.

Enjay now foremost butyl rubber supplier

90,000 tons yearly production of Enjay Butyl, now available from its originators, will go into varied industrial products

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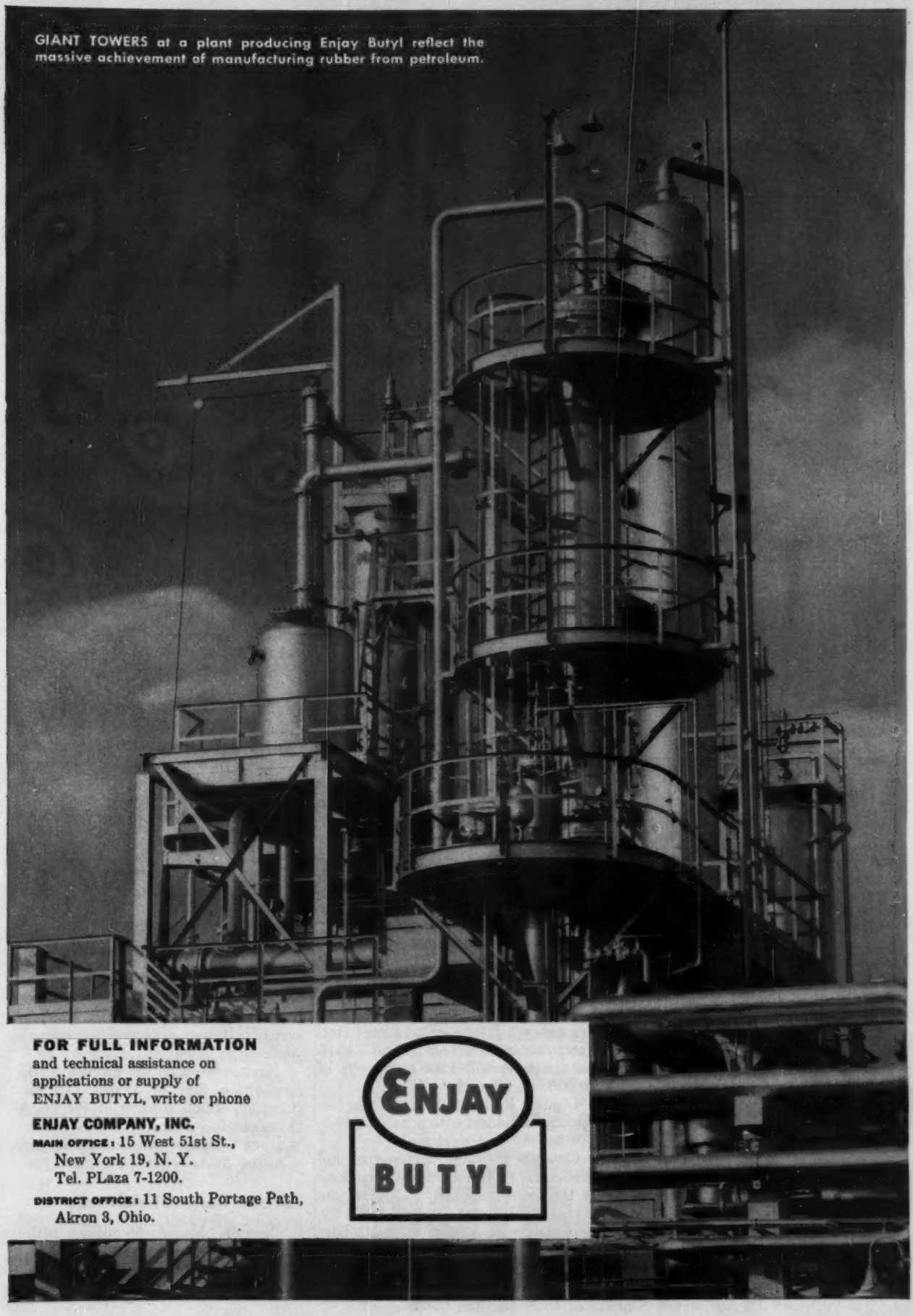

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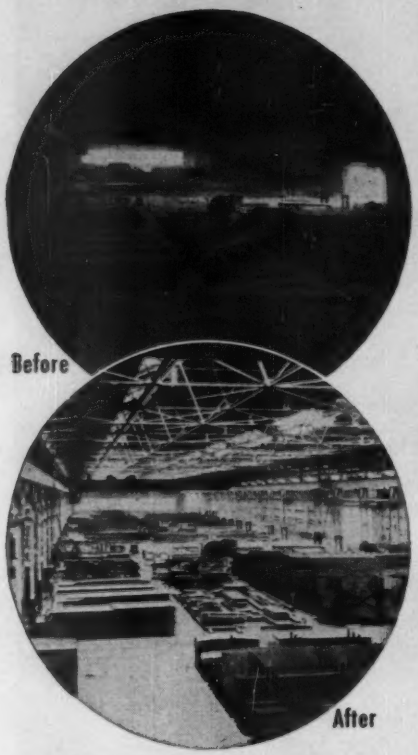

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Leap Frog Skyscraper

New York City—The steel frame of a 25-year-old, 10-story building at 625 Madison Avenue will be utilized for construction of a 17-story, aluminum-faced skyscraper.

Fifteen stores occupying the ground floor of the existing structure carried on as usual when work on the $12-million building began last week. Reconstruction of their quarters to conform to the architectural requirements of the new structure won't start until the 16 floors above have been substantially completed.

The project, due to be completed in February 1956, also will have a novel public relations angle. In place of the conventional sidewalk bridge with its high board enclosures, a gala promenade will be created on the three street sides of the building (Madison Avenue, East 58th and 59th Streets). Sidewalks will be canopied, sidewalk cafe style, with candy-striped poles and fluorescent lighting.

The new building, which will provide 400,000 sq ft of space, will have an aluminum facade with continuous windows on the three street sides. The building will be equipped with air conditioning, with individual office control of both heating and cooling.

By using the existing steel frame, which was designed originally for later additions anyway, owners are not bound by new zoning regulations requiring a greater setback and thus will be able to realize a sizable gain in floor space.

This will be the third tall office building to be erected on Madison Avenue by the owners, Moses Ginsberg & Sons. Diesel Construction Co. is general contractor, and Sylvan Bien, architect, both of New York.

Ground-Level Reservoirs

Spokane, Wash.—Construction will begin in May on the first of two of the nation's largest ground-level steel water storage reservoirs. The 240-ft-dia reservoirs will have a capacity of 10,000,000 gal each.

Chicago Bridge & Iron Co. was low among six bidders with a bid of $173,930 for the first steel tank.

Concrete footings, access road and grading for both reservoirs will be done at the same time on a 20-acre site north of the city limits. But, the second reservoir will be built at a later date.

Tre reservoirs will serve a burgeoning residential district covering approximately 40% of the city's population. They are calculated to raise domestic water pressure to approximately 40 psi from a present weak pressure system that often barely trickles during the summer lawn-sprinkling season.

Reservoirs will be filled from city wells by pumping stations, but will deliver water to homes by gravity flow. The location is at an elevation on what is called Five-Mile Prairie lying above the northside residential area.

To serve the reservoirs, the city plans a new $260,000 northside pumping station, plus a $30,000 booster station for the existing system and installation of new 30-in. steel water mains to serve the domestic system.

The reservoir is being built with Water Division funds, which have been built up by a rate increase adopted five years ago to create a reserve fund for expansion and improvement of water supply facilities.

Subway Project Cleared

Cleveland, Ohio—A test case ruling by the Ohio Supreme Court has cleared the way for Cuyahoga County to finance and build a downtown subway "loop" so that the Cleveland Transit System can operate its lines more profitably. Voters last year approved a $35-million bond issue for the project.

The proposed "loop" would tie in with the Shaker Heights rapid transit line and with the new east-west line, the eastern section of which was completed last month (ENR Oct. 8, 1953, p. 211).

Present lack of an efficient downtown distribution system is held chiefly responsible for CTS carrying about one-third the anticipated passengers on its newly opened line.

It is estimated that it will take about a year to determine the most feasible route for the proposed new connection. Also, possibilities of a conveyor belt system or moving sidewalk have been discussed.

Now at work on the problem is the consulting firm of Praeger-DeLeuw-Cutting, which consists of Praeger & Kavanaugh, New York; DeLeuw, Cather, Chicago, and Richard Hawley Cutting & Associates, Cleveland.

Urban Renewal Advance

Norfolk, Va.—A $6-million urban renewal program, covering an irregularly shaped 98-acre area of slums and blight, has been pushed into the

final planning stage by action of the City Council.

Proposed traffic improvements highlight the face-lifting program envisioned for the west side target area, near downtown. Among the chief goals of the planning to be conducted by the Norfolk Redevelopment and Housing Authority are:

- Provision for location of an arterial highway connecting Hampton Blvd. with Brambleton Ave. and other thoroughfares. (Hampton Blvd. is the principal route to the Norfolk Naval Base. Brambleton Ave. is a main cross-town thoroughfare.)
- Re-use of 28 acres for the expansion of light industry and commercial development.
- Reclaiming of six acres along the Hague, a waterway, for waterfront park and recreation areas.
- The taking of 15 acres adjacent to Norfolk General Hospital for a future medical center.

Super Inspection Service

Oakland, Calif.—A new department that would embrace the inspection functions of the building, electrical and health departments, is subject of an ordinance now before the City Council. Permit, license and inspection services would be centralized under the proposed plan. And, the new department would handle administration of the city's urban renewal program, riding herd on efforts to upgrade substandard housing.

Code Coordination

Columbia, S. C.—Columbia and five of its suburbs are discussing the possibility of creating a metropolitan planning commission to pave the way for a coordinated approach to the city's growth.

Officials of the six municipalities—Columbia, Eau Claire, Cayce, West Columbia, Forest Lake and Forest Acres—met last week to discuss the feasibility of regulating building in all of the localities under a single code.

Shipping Terminal

San Diego, Calif.—Construction of a $9.5-million shipping terminal, with space for berthing eight to 10 vessels, has received voter approval. The Tenth Avenue terminal, a three-year project, will include two dockside transit sheds of 200,000 sq ft each, and 68 acres of paved open storage area.

The bond issue as approved by the voters will finance extensive dredging of San Diego Bay in the vicinity of the terminal, utility installations and access roads.

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Robertson Galbestos has the greatest resistance to weather and corrosion of any protected steel roofing or siding obtainable anywhere. This position of broad superiority is made possible by a unique manufacturing process exclusive with H. H. Robertson Company.

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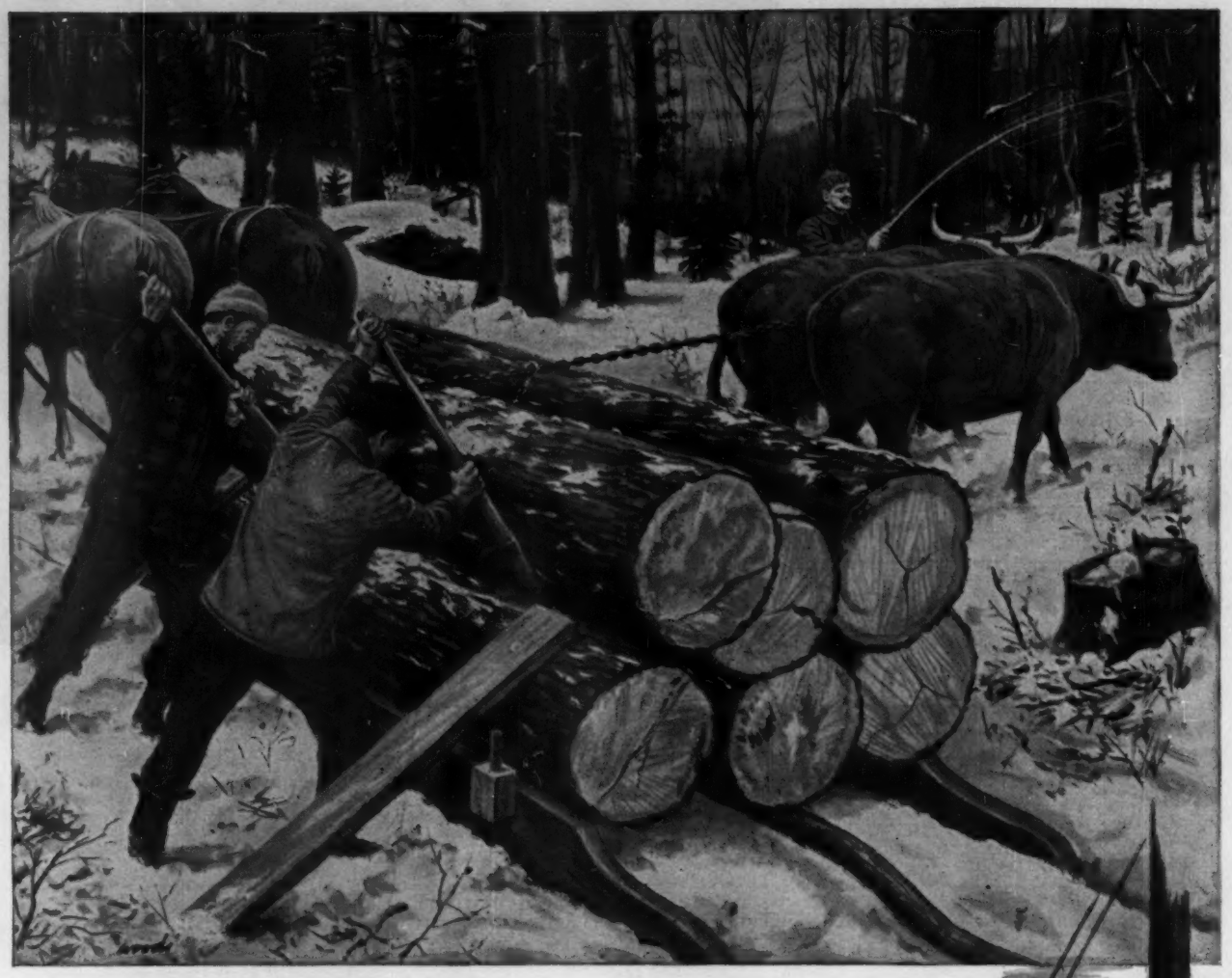

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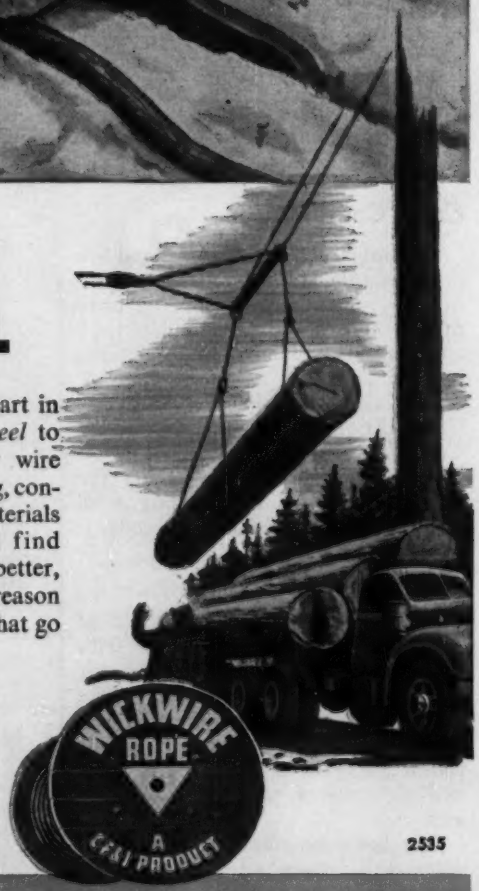

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PLYWOOD AND METAL team up to serve as inexpensive formwork for floors and roof of Hartford, Conn., building.

Low-Cost Concrete Parking Garage

A 6-story, pitched-floor reinforced concrete garage, of the open-ramp type, with caisson foundations, has been constructed in Hartford, Conn., at a cost of only $4.30 per sq ft. Of beam-and-slab construction, it was built in less than eight months, three months ahead of schedule.

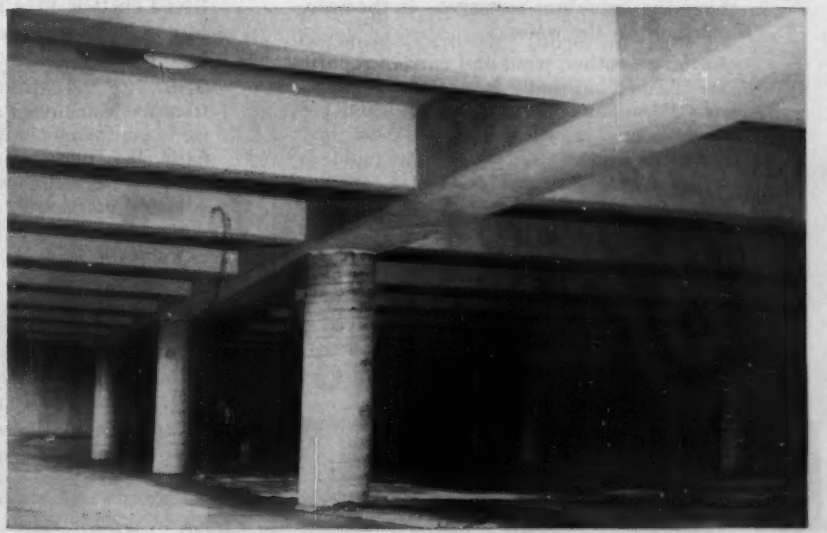
Key to the rapid, lowcost construction of this building was the manner in which plywood and metal forms were combined for the floor system and the use of paper forms for the 20 to 30-in. dia columns.

The $1,558,000 garage has a capacity of 1,015 cars. It is roughly 370x 187 ft in plan. The design includes three passenger elevators, a sprinkler system for the 59,000-sq ft basement floor, and a reservoir parking area on the first floor for 24 cars. Aisles are 25 ft wide. Minimum stall width is 8 ft 4 in., the average 8 ft 8 in. Ramps have a maximum grade of 5%. Floor area per car averages 340 sq ft.

The reinforced concrete framing was designed to simplify formwork. Forms for the 5-in. floor slabs (including 1-in. finish) were made of full 4x8-ft plywood sheets, with ½-in. allowance for stripping at the beams, which were spaced 8 ft 1 in. apart. Forms for the 14x28½-in. beams were 14-ga metal. These were made by bending 5-ft-wide sheets, eliminating cutting of the metal. Producing a surface that required little additional finishing, the metal forms were re-used as many as 20 times, and they still are good.

Floors were designed for 80 psf, the roof for 100 psf live load. The roof is topped with membrane waterproofing and a 1½-in. separate, reinforced finish. The design called for 2,000-psi concrete in the caissons and 3,000-psi concrete in most of the rest of the structure, with 3,750-psi concrete in a few highly loaded columns in the bottom stories. The mix contained a diatomaceous admixture with pozzolanic and air-entrainment properties. The engineers claim the admixture made it possible to use 5½ bags of portland cement per cubic yard for the 3,000-psi concrete, with a 20% field margin over laboratory tests.

The parking garage was designed by the architectural department of the City of Hartford under the direction of Daniel Tasillo, with the Ramp Garage Co., New York City, as consultant. A. J. Macchi, Hartford, was the consulting structural engineer. B. Perini & Sons, Framingham, Mass., was the general contractor.

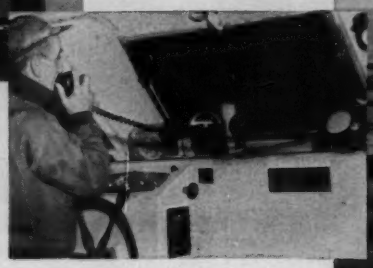


CONCRETE COLUMNS were cast in relatively cheap paper forms.

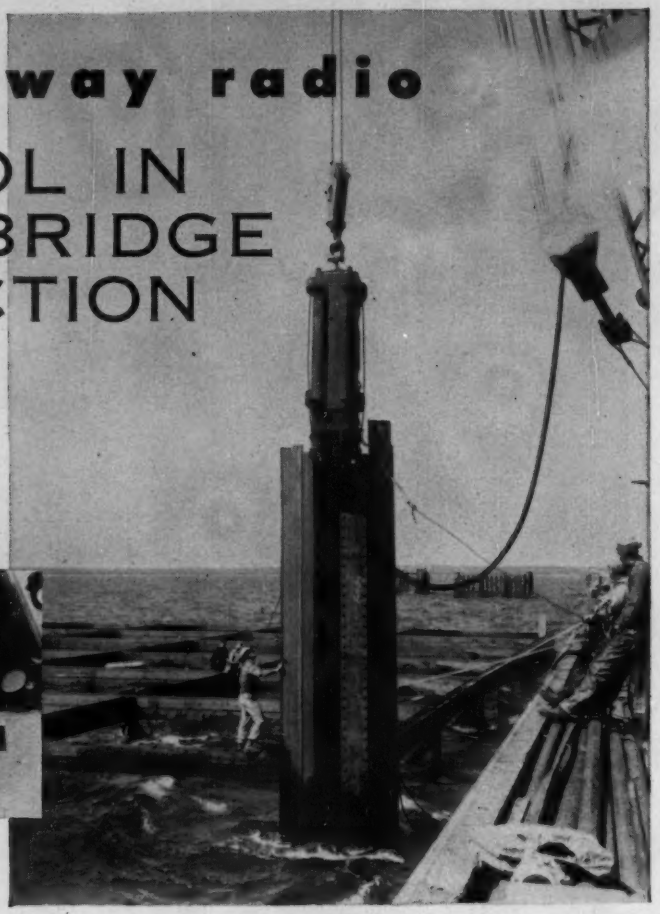
Motorola 2-way radio

VITAL TOOL IN MACKINAC BRIDGE CONSTRUCTION

Supervisors have constant contact with all operations.



Boats are radioed orders from shore, saving travel time.



HERE'S HOW 2-WAY RADIO SPEEDS THE WORK

Tying in all the working forces building the giant 5-mile bridge across the Straits of Mackinac was a big task, but 38 Motorola 2-way radio units did the job successfully.

Floating derricks, job tugs, personnel boats, trucks, autos and land based stations—all are a few seconds away from each other with radio. Supervisors do a full-time job, transmitting new orders immediately and receiving important messages—in the auto, office, or on the water.

Adverse weather, wind and current reports are flashed instantly to off-shore crews . . . these same crews can radio and get quick help if injuries occur. In these, and a dozen other ways, Motorola radio is enabling the impossible — faster and at less cost.

HERE'S WHY *ONLY* MOTOROLA COULD DO IT SO WELL

VERSATILE: Motorola produces the greatest variety of 2-way radio equipment available . . . portable, mobile and base station equipment were combined for the Mackinac Project to form a custom-made system at production line prices.

RUGGED: Motorola equipment is built to take the severe beating that any construction work imposes on it . . . to deliver when needed most. Motorola radio has been proven in use to *outlive* any other.

EXCLUSIVE FEATURES: The pioneer and leader, Motorola, offers more *exclusive* advantages and features than any other 2-way radio found anywhere.

SERVICE: A Motorola Service Station a few miles from the Mackinac Project stands ready for prompt, efficient maintenance. Motorola offers the most complete national service set-up—650 Authorized Service Stations, strategically located and on call 24 hours a day . . . assuring the fastest, most dependable service available.

Motorola
2-WAY RADIO

Motorola Communications & Electronics, Inc.
A SUBSIDIARY OF MOTOROLA INC.
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Motorola consistently supplies more mobile radio than all others combined—
proof of acceptance, experience and quality.
The only COMPLETE radio communications service—
specialized engineering . . . product . . . customer service . . . parts . . . installation . . . maintenance . . . finance.
"The best costs you less—specify Motorola".

SMOOTH RIDING is a characteristic of the two 30-ft wide pavements of the Raritan River Bridge on the Garden State Parkway.

Smooth Decks Through Well-Planned Concreting

Harry A. Hartmann
Construction Engineer
New Jersey Highway Authority
Red Bank, N. J.

The public judges bridges by their decks. If the deck rides well, the builders are considered to have done a good job; if it rides poorly, the builders are condemned.

Yet too many bridge decks, especially on some of the highway projects built recently under pressure to get the new facility into service do not have good riding qualities.

That fact was taken into consideration early in the planning for the Raritan River Bridge on the Garden State Parkway in New Jersey, largest of the nearly 300 structures on that 163-mile project. Thinking about how to produce a smooth riding deck began when the steelwork was being designed, continued during steel erection, and did not end until the inspectors permitted the curing compound to be sprayed on the finished concrete pavement.

• Nearly a mile long—The Raritan River Bridge is a deck-girder structure 4,386 ft long, made up of 29 spans ranging from 86 ft to 250 ft, the latter being in the main river crossing. It has two 30-ft wide concrete roadways separated by a raised 5-ft dividing median and with outer walks 1-ft, 10-in. wide. Sidewalks and median are surfaced with open grating. The maximum grade is 4%.

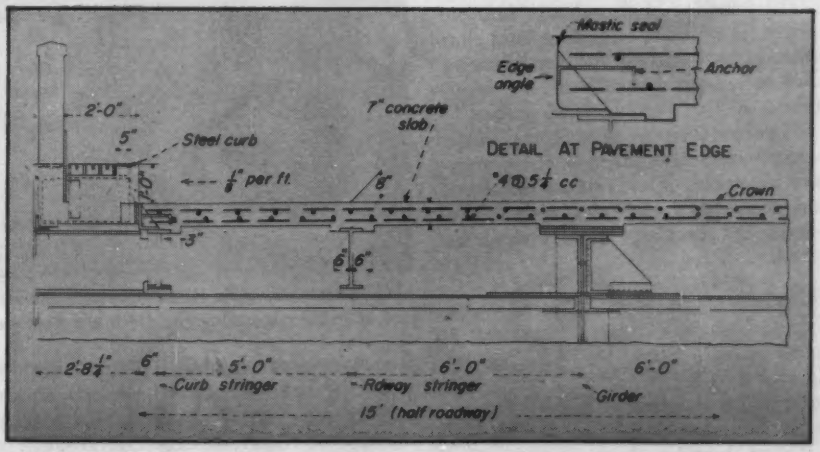
Normal thickness of the one-course deck slab is 7 in., but the slab is deepened to 8 in. over the stringers. Total area of the slab is nearly 30,000 sq yd.

Each roadway has a 2-in. straight center-line crown. Cross drainage is over the slab edges through continuous curb openings.

There are no interior longitudinal joints. Transverse joints are of four types: Expansion joints of the finger type in the continuous spans; open expansion joints (1¼-in. clear opening) in the simple spans; one-inch cork flexure joints with copper seal in the bottom half-depth of the continuous spans; and construction joints having perforated copper seals of 1½ in. below

A Typical Yard of Concrete

Coarse aggregate, ¾-in. trap rock (49% voids), 1,980 lb dry, spec. gr. S.S.D., 2.83
Sand, 1,123 lb dry, spec. gr. S.S.D., 2.62
Cement, Type 2 portland, with an air-entraining agent added at the rate of 3.5 oz per cu yd, 7.2 bags per cu yd
Water, 4.6 gal per bag or 33 gal per cu yd
Air, 4% average
Slump, 3 in. average
Sand-aggregate ratio, 38%



HALF SECTION through one roadway. The top of the steel curbs provided a track for the vibrator screed, while the edge angle served as a form for outer edges.

the surface, with reinforcing steel passing through the joint.

• **Steel must be set accurately**—The importance of accurate detailing and erection of the structural steel as a factor in obtaining good riding qualities on the deck of a bridge cannot be overemphasized. In the design of the structural-steel members it is very important that thought be given to facilitating deck construction, and that any features that might aid this should be incorporated in the original design.

On this bridge the stee curbs were planned to serve as supports and as a fixed guide for the deck screed. Together with the edge angles they also provided the basis for the longitudinal profile of the deck.

During steel erection, inspectors checked the setting of the steel in the field for the specified spacing and elevation because inaccuracies in that work could necessitate altering the finished grade of the pavement if the specified thickness is maintained. Such a condition could result in an unsatisfactory riding surface.

If inaccuracies are found, it may be necessary to shim and reset the structural members in the field to take care of them. The detailing and placing of the reinforcement and accessories also should be checked for size, spacing and clearance.

• **Concrete deck specifications**—Specifications of the New Jersey Highway Authority are patterned after those of the New Jersey State Highway Department. For concrete they specify mix proportions by dry loose volumes, which are based on the dry loose unit weight of aggregates.

The amount of aggregates will vary with the volume of voids in the loose coarse aggregate. Such voids equal 90% of the sand volume. Basic mixes, set up on the basis of 45% voids in the coarse aggregate, are adjusted to meet job conditions.

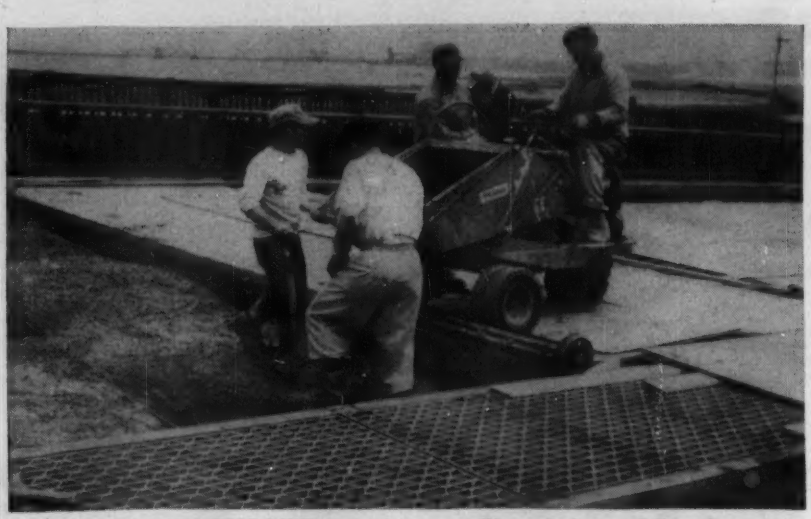
This method of mix design in New Jersey is of long standing and has worked out very well, and the resulting sand ratios are generally at the minimum.

The composition of a typical cubic yard of concrete is given in the accompanying table. That mix composition and consistency was uniformly maintained and excellent results were secured.

• **Concreting the deck**—Concrete was obtained in transit-mix form from a nearby plant. Some was handled by elevator to a hopper at deck level, but most of it was delivered directly to gas-driven concrete buggies on the bridge.

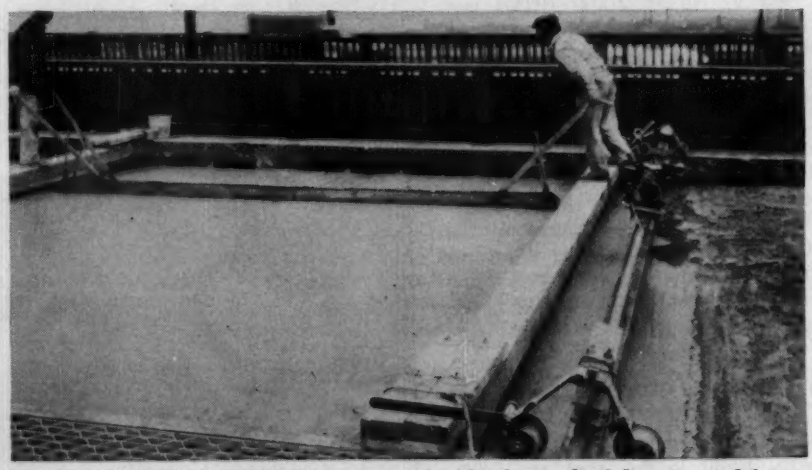
These buggies dumped into the forms from rolling platforms ahead of the paving area where the concrete was spread by hand shovelers.

Next step was to pull a vibrator screed over the fresh concrete, always maintaining a uniform amount of concrete in front of the screed. This screed had a bearing surface 6 in. wide and weighed about 700 lbs. It was equipped with four roller wheels which moved on top of the steel curb on each side of the roadway, screeding to the level of the top of the edge

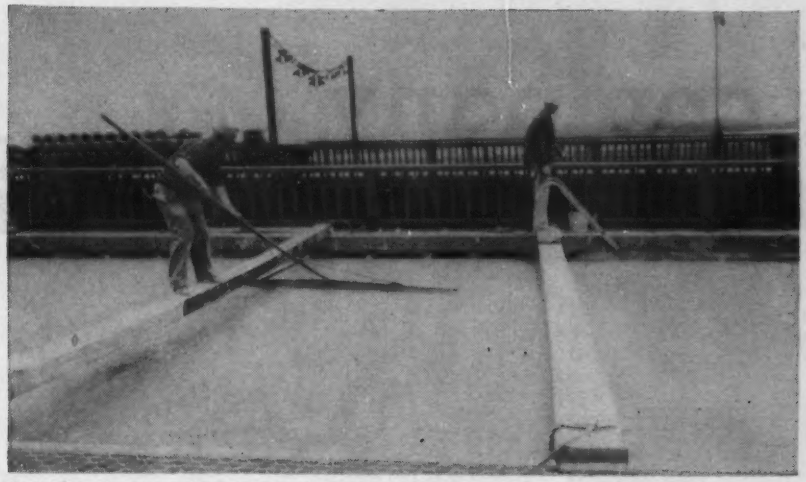


POWER DRIVEN BUGGIES operating on rolling platforms delivered concrete.

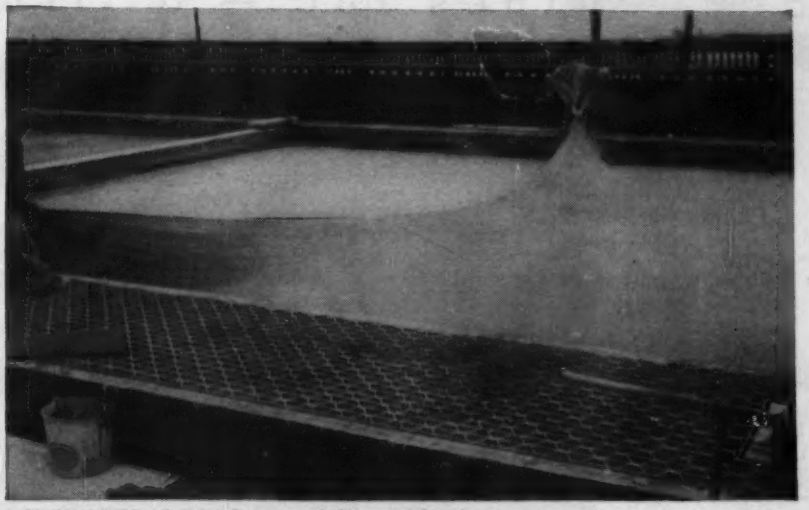
A VIBRATOR SCREED, rolling on the top of the steel curb, consolidated the mix.



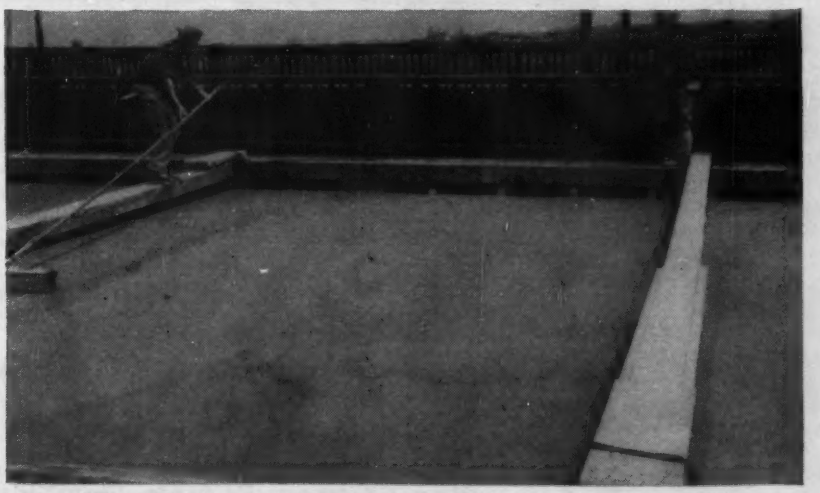
ANY TRANSVERSE RIDGES were removed with a longitudinal float operated from a pair of bridges spanning the fresh concrete pavement.



NEXT CAME A SCRAPING STRAIGHTEDGE that was worked transversely over the surface in two passes.



A WET BURLAP DRAG was pulled longitudinally over the surface at the proper time.



FINAL TEXTURE was obtained with a broom having 5-in. long fiber bristles.

angles. Generally, this screed was operated on the 4% down grade. It did an excellent job of spreading and consolidating the mass.

The surface was then gone over transversely using a 16-ft longitudinal float 10-in. wide of metal channel section equipped with plow handles and operated by hand from a pair of timber bridges spanning the pavement. The use of a longitudinal float is considered essential to smooth riding.

A 10-ft wood scraping straightedge subsequently was worked transversely across the surface with the handle lowered for the forward movement and raised for backward pull over the same path. Both float and straightedge were advanced one-half length for each move along the pavement.

The scraping straightedge also is considered a must for all road or bridge paving.

Third finishing step was pulling over the surface a wet burlap drag consisting of double thickness without seams and about 42 in. wide. This produced a surface texture that often is used as final finish, but in this case the desired surface texture was obtained by use of broom 32 in. long having two rows of 5-in. fiber bristles and operated from edge to edge of pavement. Very satisfactory results were secured by this means.

• **Surface evenness**—Careful straightedging was performed throughout and particular care was taken at all joints to secure the best riding qualities. Any transitions were carried out on long lines so they could not be seen or felt.

The net result is a concrete surface on this nearly mile-long structure which is considered as nearly perfect as can be constructed. Also, in securing this surface there was no fuss, bother or holdup. There was close cooperation between all forces concerned. The contractor and the engineers are to be congratulated on a big job well done.

• **Construction costs** – The total amount of the several contracts on this structure, including those for material purchased by the authority, is $10,346,210 of which the deck paving, including reinforcing steel, and other items, is $587,852. This amounts to $104.50 per cu yd or $20.10 per sq yd.

• **Personnel**—The Raritan River Bridge was built by the New Jersey Highway Authority, for which Harold W. Griffin is chief engineer. The author supervised construction for the authority.

Parsons, Brinckerhoff, Hall & Macdonald are general consultant for the authority on the parkway, and Morris Goodkind, chief bridge engineer of the New Jersey State Highway Department, serves as consultant on bridges.

D. B. Steinman was consulting engineer on this bridge project, with R. M. Boynton and Carl H. Gronquist as project engineers and John G. O'Donnell resident engineer.

The Brookfield Construction Co. was contractor for the deck paving, with John Sorensen superintendent in charge of the construction.

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General Road Machines Inc.— a firm with fresh concepts in road building.

Road Forms

The General "Long" forms are up to 20 feet long, and the General Form-Handler is the machine to power-pull and power-set these Long forms. (General also makes 10-foot as well as 8-foot forms used where weight is a factor in man-handling.)

Savings? On 10,000 feet of forms, using the General Twenty Long, you handle 500 pieces instead of 1,000 . . . you connect 500 joints instead of 1,000 . . . you wedge 500 joint locks instead of 1,000 . . . you align forms 500 times instead of 1,000 times. You achieve a straighter form line because you have only half the breaks and joints.

These are some of the savings with the General Twenty Long. What are your requirements? General makes forms 8 to 20 feet long. Buy General to fit your particular needs.

Light-Weight Spreader—*Portable*

General's Five-Star Portable Spreader is, by comparison to other models, light in weight. This feature, combined with its unique spreading action, eliminates the excessive form wear common to paving jobs today. Despite the light weight, and because of the unique spreading action, the General Five-Star Spreader will handle the dryest mixes specified.

And it's *portable!* (For those who do not prefer portable equipment, General makes the 4-S series of non-portable spreaders.)

Compacting Screed Finisher—*Portable*

The General Five-Star Portable Finishing Machine is a brand-new design. Here are some features: 6 speeds forward; 6 speeds reverse; 4 independent screed speeds. Brand-new compacting screeds—14" wide on the front; 15" wide on the rear. Machine frames can be widened automatically for tapered lane construction.

And it's *portable!* (For those who do not prefer portable equipment, General makes the 4-S series of non-portable finishing machines.)

Mechanical Curb Builder—*Portable*

The General Five-Star Curb Building Machine was invented by a contractor and has been in use for four years. It has thoroughly demonstrated impressive cost reductions. For integral curb construction, call General to demonstrate new money making methods.

And it's *portable!* (Yes, there's a 4-S series available, too.)

"Final Finisher"—*Portable*

This machine is still on paper. It is General's top-secret development. The first unit is scheduled for production in mid-June.

Here's what we're working on: After the last pass of the transverse finishing machine, the contractor must still meet an additional 3 to 4 finishing specifications (plus joint, edging, and curing specs), and these final finishing specs vary from state to state, and from city to city within a state.

A contractor working inter-state has fairly uniform specs up to the transverse finisher. From there on he deals with a confusing variety of requirements. Sometimes he converts machines to the job—sometimes he employs hand methods.

General's Five-Star "Final Finisher" will wrap up this multitude of specs into a single high-speed package—giving pavers a new, flexible tool to reduce costs.

(This machine will also be designed in the 4-S non-portable series.)

Other GRM Products

All machines listed below are available in portable or 4-S non-portable models. General is the *first* to develop a complete portable train of paving equipment.

Concrete Float Machines
Joint Machines
Curing Machines
Curb, Gutter, Sidewalk Forms
V-Plate
Cap Strips
Hand Tools
Rolling and Power Bridges
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"K-45 Kompactor saves us up to 60% of normal compaction costs!"

estimates Ohio contractor who has operated his Kompactor since 1954

This field performance report on Buffalo-Springfield's revolutionary, high-speed K-45 Kompactor comes from Roscoe "Dutch" Connolly, president of the Connolly Construction Co., Marysville, Ohio.

"Our K-45 Kompactor has been in almost continuous use since early spring of 1954," says Mr. Connolly. "In our opinion, it is the best compaction machine available today. *It not only exceeds specified density requirements, but we estimate it saves up to 60 percent of normal compaction costs,* because it takes far less working time to meet required densities, and leaves a smooth-finished surface that prevents moisture from penetrating the material after the rolling is finished."

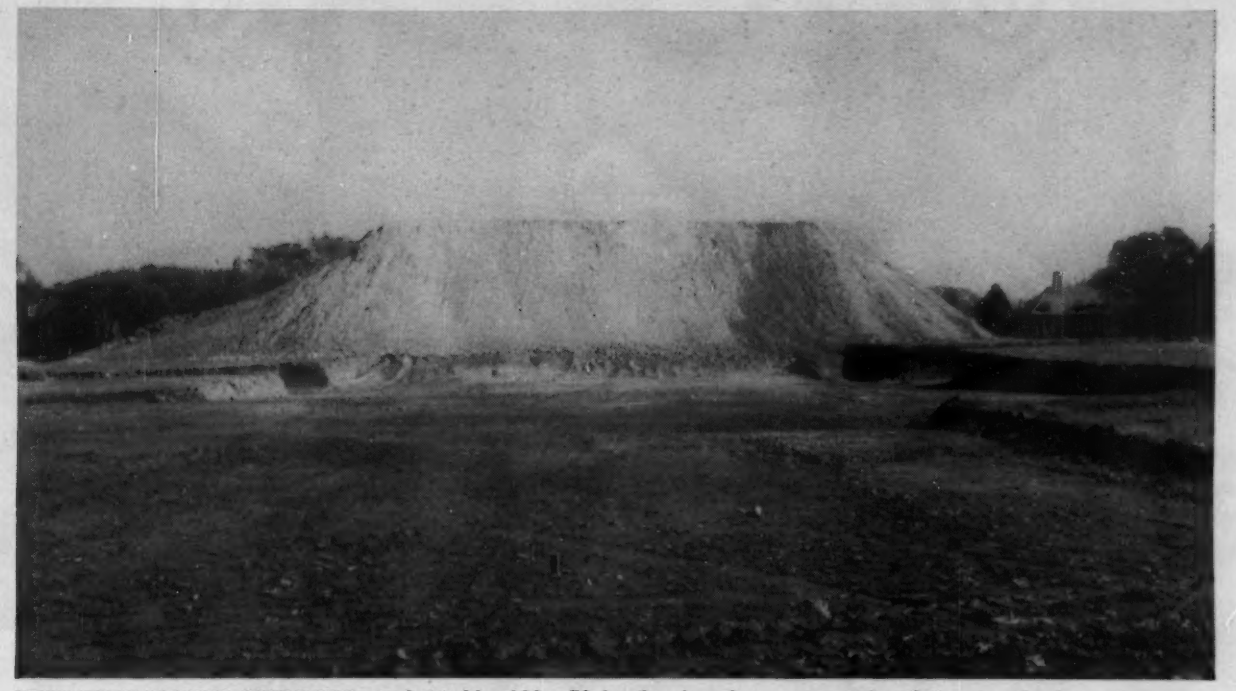
Mr. Connolly also appreciates the fact that the Kompactor is self-propelled, "and thereby requires much less total investment to handle compaction operations.

"We also like the Kompactor because we can work right *up close* to building foundations and bridge abutments, thereby eliminating at least 90 percent of the hand tamping work usually required on such jobs. And finally, we're sold on the K-45 because of its extremely low maintenance cost in comparison to other types of compaction equipment."

Have *you* seen a K-45 Kompactor in action? If not, you've missed an eye-opening experience. Check with your nearest Buffalo-Springfield distributor today for all the facts on this amazing machine that can literally *halve* your job compaction time and costs. Or send for free brochure that illustrates and describes the K-45 and what it can do for you.

BUFFALO ROLLER COMPANY **SPRINGFIELD** SPRINGFIELD, OHIO, U. S. A.

THE LEADER IN COMPACTION EQUIPMENT DESIGN AND MANUFACTURE



NEW TYPE MOUND BUILDERS raised this 30 x 120 x 70 ft pile of earth to compact foundation area for heavy towers.

Earth Compacts Earth for Cathedral Base

After using an ancient technique to provide proper foundation conditions, builders are now at work on the construction of a new Catholic cathedral in Baltimore.

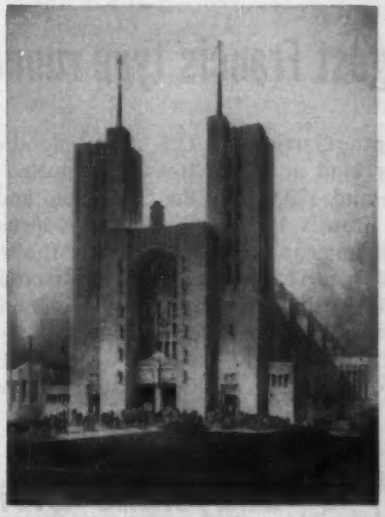
The technique is the use of an earth surcharge—in this case a mound 30 ft high, 120 ft long and 70 ft wide—to compress subsoil strata to minimize possibility of differential settlement between the cathedral's massive stone towers and the remainder of the structure.

The cathedral itself is unusual in that it will be entirely a masonry structure. To be built of a base course of granite faced inside and out with limestone, the structure will be 375 ft long, and have a width of up to 94 ft in the nave section. The two stone towers will be 133 ft high, the nave section 80 ft.

• **Problem**—Soil investigations on the hilltop site of the cathedral (The Cathedral of Mary, Our Queen) indicated that the formation is a disintegrated micaceous rock, of varying degrees of disintegration and depth. Further, it was clear from test borings and load tests that the soil is compressible, consolidating almost immediately on application of load, and rebounding less than half when the load is removed.

Working with Prof. Arthur Casagrande of Harvard University, architects Maginnis and Walsh and Kennedy of Boston estimated that if the building were built directly on the subsoil without preparation, the settlement of the towers would be about twice that of the rest of the structure.

• **Solution**—Turning to a technique used for many centuries for bridge approach fills, port facilities and highways, the designers decided to use earth surcharge. So far as can be determined, the method hasn't been used before for a building in Baltimore, and Harry W. Oldfield, project superintendent for Turner Construction Co.—prime contractor—says its the first time in the 52 year history of his firm that such a surcharge was built up for a building.



STONE TOWERS will loom 130 ft atop hill site, dominating structure.

At direction of the designers, then, the big mound of earth, containing 26,000 cu yd excavated from other portions of the 23-acre site, was heped up within specified limits. It was computed that the mound, plus some 17 ft of subsoil, would produce a bearing pressure of four tons per square foot, and a settlement of about ½ in.

In this compressed area, the builders will found the towers on a mat of concrete 60 ft by 115 ft, consisting of 1,300 cu yd of material some sections of which will be five to seven ft thick, or a depth of 17 ft below original ground level.

• **Details**—The contract was awarded to Turner last August, with completion set for 1959. Potts & Callahan, Baltimore, hold a subcontract for grading and erection of the surcharge mound. (The surcharge was removed after remaining in place undisturbed for a full month—earth used for it being placed as fill for parking areas in the rear of the cathedral.)

Seating 1,900 persons, the cathedral will be set back 250 ft from Charles Street in northern Baltimore. In addition to the towers and the main worship area, there will be extensions for four chapels, a baptistry and sacristy. Roof over the nave section will be supported by 13 stone arches on 21 ft 4 in. transmitting load to reinforced concrete walls and continuous spread footings.

173,000 lb. "GULLIVER"... largest Francis type runners ever cast in one piece

Baldwin's three hydraulic turbine runners for the Garrison hydroelectric plant are the largest of their kind in the world. 18½ feet in diameter, 9 feet high and 173,000 pounds in weight, they are the largest Francis type runners ever cast in one piece. Maximum horsepower rating is 134,000, limited by a generator loading of 115%.

Because of their size, these runners had to be shipped by inland waterways from Baldwin's Eddystone Division plant near Philadelphia. The photo shows the first runner being readied for shipment to the Corps of Engineers, U.S. Army, flood control and power generating project. It was transported on this barge up the Hudson River to the Erie Canal and across the Great Lakes to Superior, Wisconsin. A special railway car built by Baldwin carried it the rest of the way to Garrison Dam on the Missouri River near Riverdale, North Dakota.

A new bulletin on Baldwin and Pelton hydraulic turbine developments has just been printed. If you'd like a copy, please write to Dept. 5209, Baldwin-Lima-Hamilton Corporation, Philadelphia 42, Pa.

BALDWIN BLH LIMA-HAMILTON

Eddystone Division

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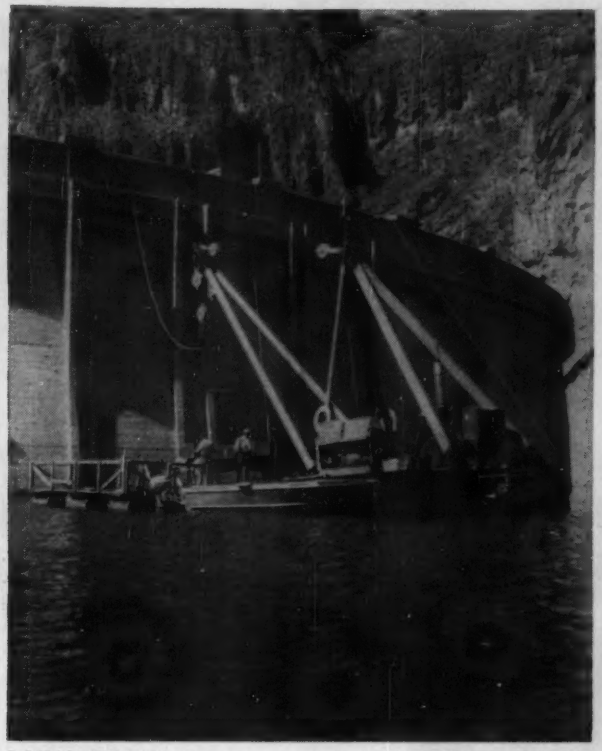
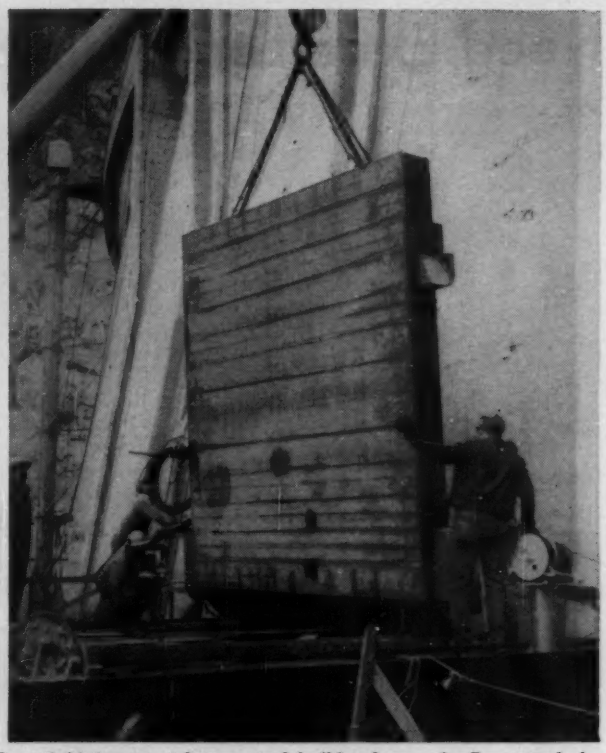




GOING DOWN—Barge-mounted rig behind Arizona irrigation dam (left) lowers eight-ton steel bulkhead to seal off penstock for repair operation that involved re-aligning penstock plates.

Bulkheads Solve Penstock Repair Problem

How to end leakage in penstocks without losing water or interrupting operations—and do it for $80,000—was the problem that faced engineers of the Salt River Power District at its Horse Mesa Dam 65 miles northeast of Phoenix, Ariz. They have just completed the job within the price limit set.

Study ruled out draining the reservoir because of loss of water and electricity generation. So the power district's engineering staff designed two bulkheads that could be slipped down the upstream face of the dam to seal off two of the penstock intakes, leaving a third in operation and to be repaired subsequently.

The bulkheads were fabricated of 12 in. wide-flange beams welded together, with the ends sealed off with steel plates, and the edges equipped with rubber gaskets to provide an effective water seal. They were designed to slide between the trash screen guides. Each bulkhead weighed about eight tons.

• **Floating base**—To handle the job of removing the badly eroded trash screens and then placing the bulkheads, the district called in the Vinson Construction Co. which had recently completed a job on the Colorado River where it used a sectionalized steel barge as a floating base of operations. This barge, cut into sections of 5x5x7 ft, was moved by land from the Colorado to Horse Mesa reservoir, and reassembled. Working from this platform, the contractor removed the corroded 18x24-ft penstock trash screens and then lowered the bulkheads 200 ft to the penstock openings near the base of the dam.

Interior inspection showed 165 rivets that had to be removed and replaced in each penstock, and there was, in addition, about 400 ft of repair welding to be done on both pipes. Poor plate alignment, which permitted water to seep past the rivets, was revealed as the original cause of the corrosion. In the repair work, defective holes were reamed from the original 1⅛ in. to 1¼ in. or larger before new rivets were driven.

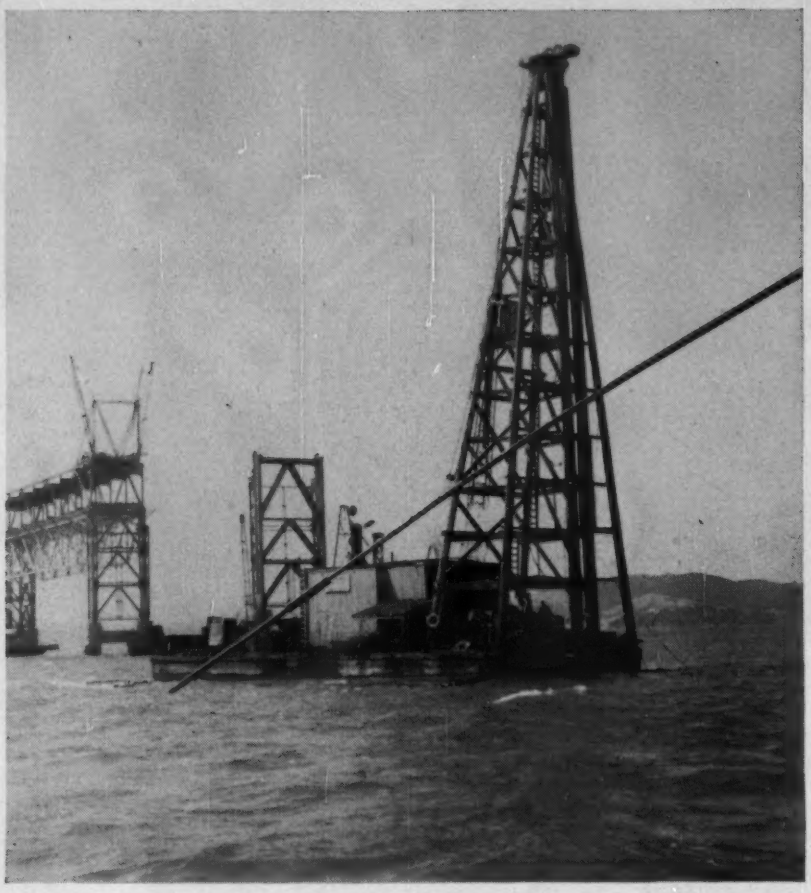
Along with penstock repair, other modification was handled at the same time. In the original installation there were 8-in. pipes on the top of penstocks 2 and 3 to serve as a water takeoff for cooling. However when the turbines were started air would rush in and cause a hammering. Power district engineers therefore decided to transfer these takeoffs to the bottom of the penstocks, stopping the flow of air.

When work was completed, pressures were equalized on both sides of the penstock area by releasing water into the penstock area through the new piping system. Bulkheads then were removed.

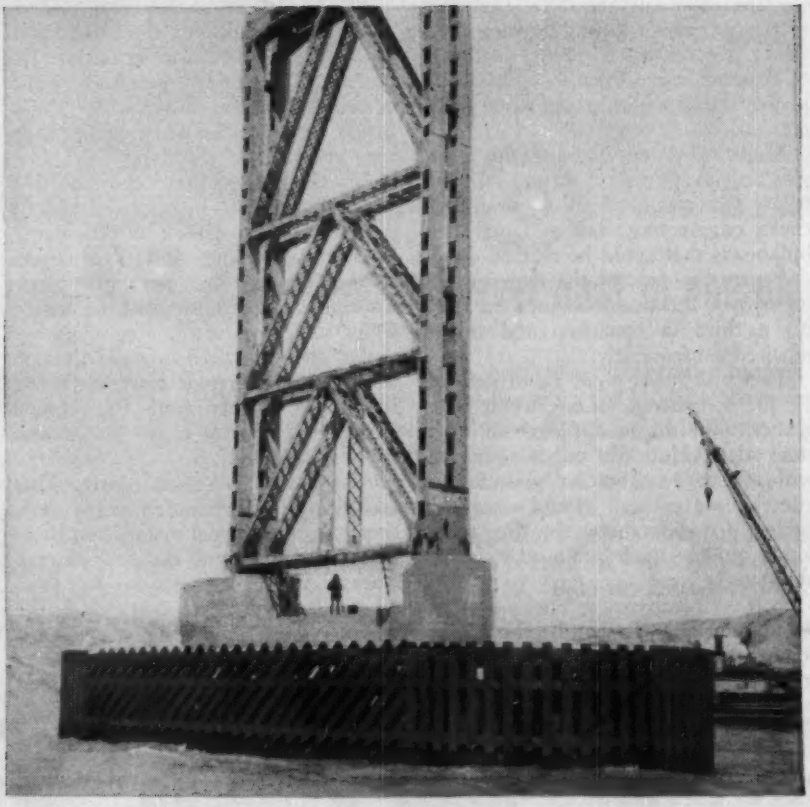
• **Credits**—T. M. Morong is chief engineer for the Salt River Power District; A. W. Tesmer, supervisor of mechanical engineering, was responsible for the bulkhead design; and T. W. Bent was resident engineer on the job.

REPAIRS—Years of seepage past old rivets was causing leaks, necessitated replacement.

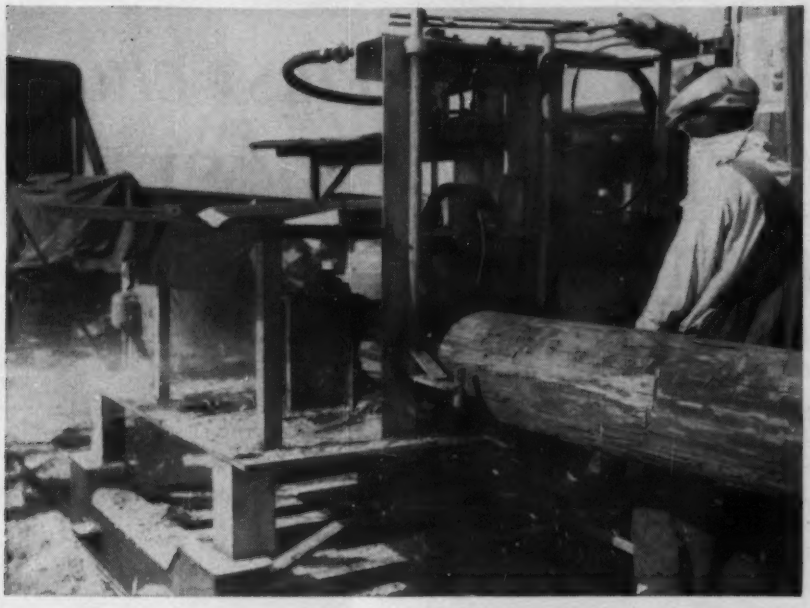
Need Extra-Long Wood Piles? Just Splice 'Em



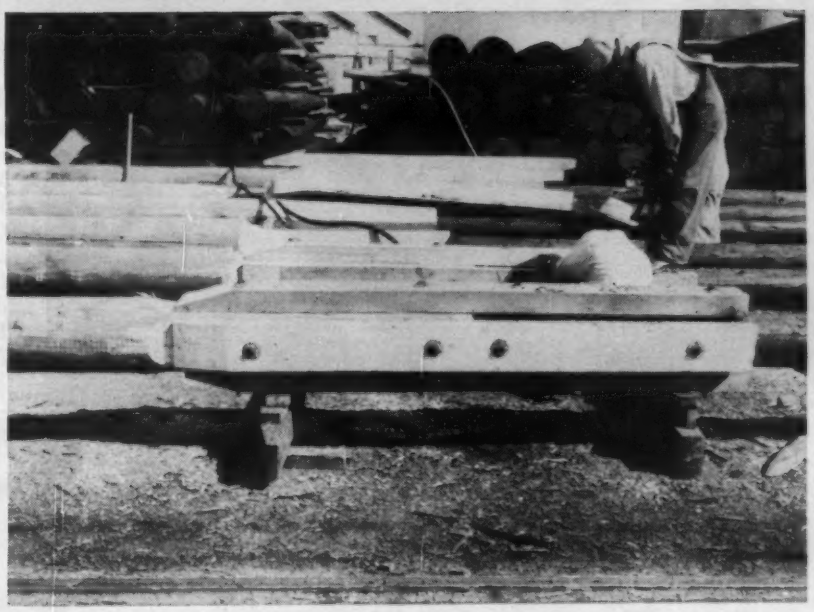
DRIVER PICKS UP PILE spliced to 160-ft length for Richmond-San Rafael Bridge pier fender. Record length is needed to get firm bearing in thick mud layer that underlies the deep water. Bridge, being built for the State of California, provides a vehicular crossing of the north arm of San Francisco Bay.



FENDER PROTECTS PIER near navigation channel. Eight piers are so protected involving 1,448 piles and a million board feet of treated lumber. Fender system is flexible to impose minimum damage to piers and to ships that might hit them.



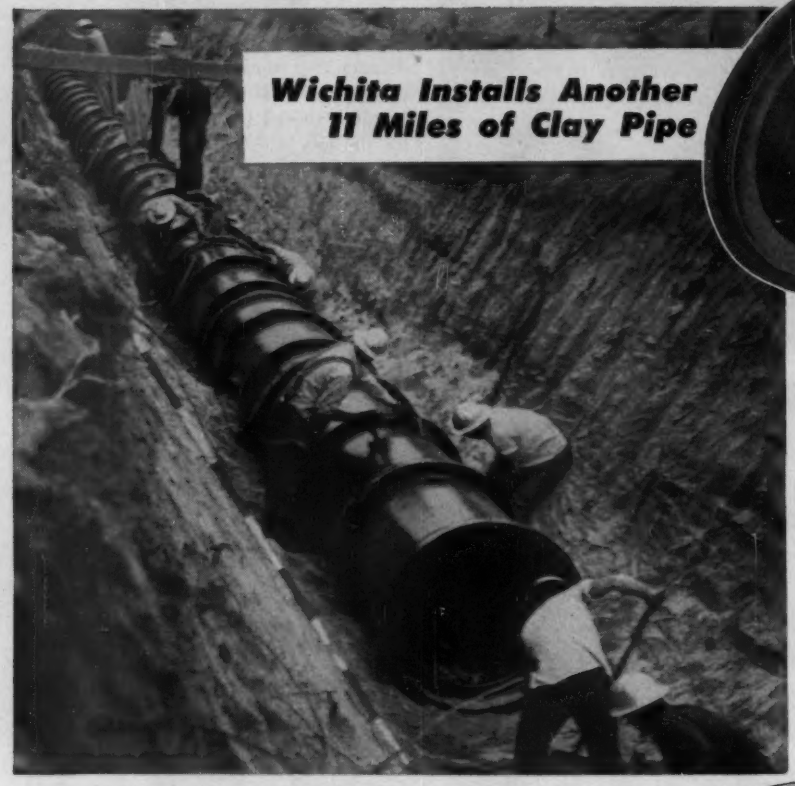
PILES ARE SHAPED for splice by machine having two rotating shaving heads. Machine is pulled into pile that is clamped in place. Pile is rotated 90 deg for second shaping that squares butt. Machine was developed by J. H. Baxter & Co. who supplied spliced piles and treated lumber for the job.

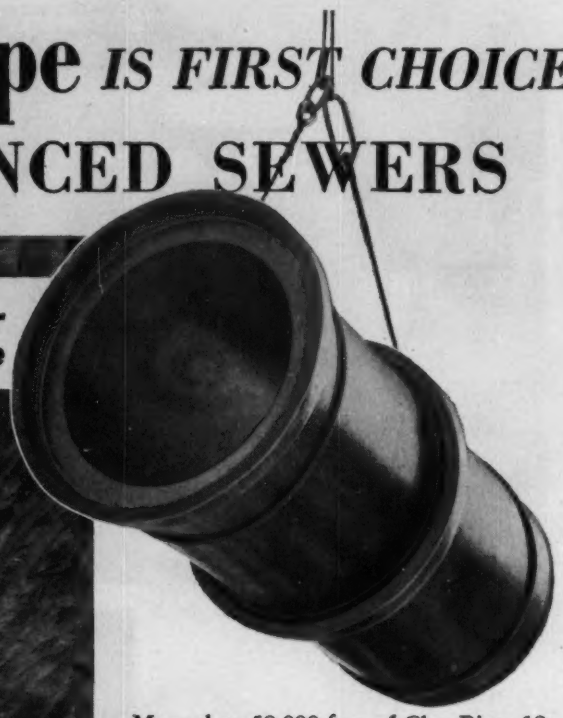


PILES ARE SPLICED by 4x8 in. timbers bolted with ¾-in. black bolts working against annealed washers. Butt of 65-ft long untreated pile (left) is shaped to fit 95-ft long, 12-lb pressure-creosoted, pile (right). Untreated pile and splice will be below mud line.

PILES ARE MOVED in Baxter yard by two locomotive cranes using a four point pickup. Fender system is part of bridge substructure contract held by joint venture of Ben C. Gerwick, Inc., and Peter Kiewit Sons Co.

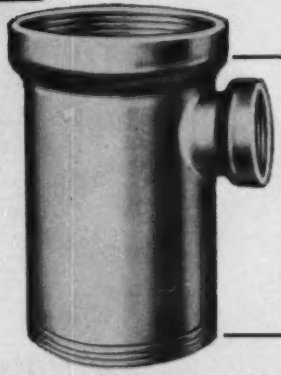
Guaranteed Clay Pipe *IS FIRST CHOICE*
FOR BOND-FINANCED SEWERS





More than 59,000 feet of Clay Pipe, 18 to 36 inches, are being installed in Wichita, Kan., under the direction of Eugene N. Smith, City Manager; George J. Fisher, Director of Service; and B. E. Smith, City Engineer. Contractor is Utility Contractors, Inc., under Paul W. Brock, President. Project Engineer: Ray E. Lawrence. Resident Engineer: Don Proudfit. Consulting Engineers: Black and Veatch.

When taxpayers approve a sewerage bond issue, they're giving a vote of confidence to the good judgment of the men who will specify the pipe. Bond-financed sewers *must* give long, trouble-free service. You can be absolutely sure of their dependability when you use guaranteed Vitrified Clay Pipe. Clay Pipe installed today will be good as new long after the bond issue is retired. Alkaline soils or acid sewer gases can't corrode it. Corrosive industrial waste doesn't affect it. There's *no safe substitute* for chemically inert Clay Pipe. It's guaranteed for 50 years!



A complete line of fittings solves every installation problem when you specify Clay Pipe. This T-Branch, for example, enables you to joint feeder lines into a trunk without patching or using substitute materials.

Vitrified
CLAY
CLAY PIPE NEVER WEARS OUT!
PIPE

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It's water to the rescue for these historic buildings with . . .

Drainage in Reverse at Copley Square

Considerable interest has been kindled in the area of Boston's historic Copley Square, where a clamshell bucket is completing excavation and backfill of a 400-ft trench. Observers, ranging from taxicab drivers to little old ladies, have watched twin 12-in. perforated metal pipelines being installed in the trench that seems to start aimlessly, run down the center of the square and end nowhere in particular.

The apparent purposelessness of the operation, however, is deceiving, for upon these small-bore lines may rest the salvation of municipally and privately owned buildings that lie in the surrounding area.

During recent years, the ground water table has been dropping until now—during dry weather conditions—pile-heads and caps are exposed to decaying influences. Most critically affected are the Boston Public Library, which has undergone extensive repairs to pile caps; the old S. S. Pierce Building and historic Trinity Church. In some of the buildings it has been necessary to flush down basements in order to prevent drying out of the timber piles.

• **What was the cause?**—There are several theories as to the cause of the de-watering of Copley Square but it is probable, according to one municipal spokesman, that the critical condition is the result of a combination of contributing factors.

When the Boyleston Street line of the Boston Subway was built, the tube constituted an effective dam between the area and the Charles River. Extensive pumping was necessary during construction and pumping was continued after completion of the line in order to keep the subway dry. Since Boyleston Street borders Copley Square at the Copley station, the resulting draw-down is considerable.

There are conflicting reports as to the adequacy of cross-drain batteries through the subway structure—if they exist at all—with all agreeing that effective damming action of the subway, together with the action of the station pumps, must take at least a portion of the blame for the dropping groundwater level.

Boyleston Street also contains a large combined sewer that carries storm water, sewage and effluent from the many building sump pumps. It is known that a large quantity of surface and groundwater infiltrates into this line, transforming it into an effective drainage conduit. In this manner, not only are the sump pumps in the area carrying out vast quantities of the groundwater, but the sewer itself depletes the supply by even a further amount.

When it was discovered that the sewer was acting detrimentally to the area, the city decided to try building up the pressure within the big pipe in order to change the action from infiltration to that of seepage.

In order to accomplish this a dam was constructed in the big main, thus raising the water level in the pipe with a resultant increase in static head. This may have ameliorated the condition, but to so small a degree that disintegration of piling has not been effectively checked.

• **How will perforated pipe work?**—Since the combined sewer carries high volumes even under dry-weather conditions, a plan to recharge the area from the contents of this main was thought to be practicable. By tapping into the Boyleston Street main at the northeast end of triangular Copley Square, the new recharge line could be maintained full at all times.

In times of extreme flow the recharge line would not effect flow in the main even though part of the sewage would continue to be diverted to the groundwater reservoir.

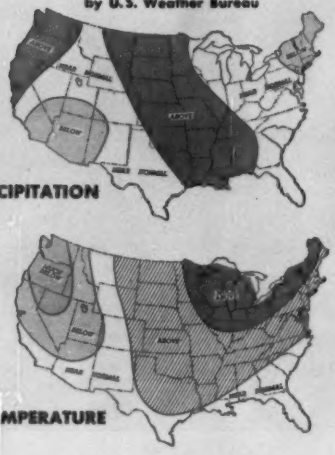
The pipe, installed at approximately 15 ft below grade, was laid on a 12-in. bed of gravel. Condition of the soil—mostly old fill material—necessitated timber sheeting that was withdrawn as backfilling was accomplished.

John J. Botti, Boston excavator was the contractor on the project.

30-DAY WEATHER OUTLOOK

Mid-April to mid-May

by U. S. Weather Bureau



PRECIPITATION

TEMPERATURE

Observed weather in 20 cities, compared with normals

	Precipitation, inches				Temperature, degrees			
	Mar. 1955	Departure fr. normal	3 mos. 1955	Departure fr. normal	Mar. 1955	Departure fr. normal	Av. daily maximum	Av. daily minimum
Atlanta	3.27	−2.40	12.18	−2.98	56.1	+3.4	67.5	44.6
Baltimore	3.34	−0.29	6.31	−3.97	44.7	+1.7	55.3	34.3
Birmingham	4.16	−2.15	15.33	−1.13	57.6	+3.8	70.0	45.1
Boston	5.42	+1.99	10.45	+0.59	37.6	0.0	44.8	30.4
Chicago	1.72	−1.13	5.04	−1.06	37.2	+0.2	46.6	27.7
Cincinnati	5.01	+0.94	13.88	+3.82	45.0	+1.7	55.2	34.8
Cleveland	5.59	+2.70	7.61	+3.11	38.6	+1.8	48.6	28.5
Dallas	1.70	−1.11	4.98	−2.92	58.3	+0.9	70.1	46.5
Denver	0.72	−0.52	1.43	−0.87	37.7	−1.6	50.2	25.1
Detroit	2.11	−0.42	6.29	−0.34	35.7	+0.6	44.2	27.2
Kansas City	0.71	−1.80	6.17	+1.07	43.7	−0.1	54.4	33.0
Los Angeles	0.56	−1.80	5.54	−2.57	61.3	+2.4	71.2	51.3
Minneapolis	0.52	−0.96	2.53	−0.64	25.6	−5.3	35.6	15.6
New Orleans	0.04	−6.52	12.90	−2.62	66.4	+3.4	75.5	57.2
New York	4.65	+1.09	7.94	−2.21	41.1	+0.4	48.6	33.6
Philadelphia	4.80	+1.48	7.74	−1.97	44.4	+2.1	53.3	35.5
Pittsburgh	4.49	+1.08	8.38	+0.24	43.6	+2.0	53.6	33.5
St. Louis	2.24	−1.40	6.92	−0.92	45.3	0.0	55.4	35.2
San Francisco	0.29	−2.49	5.52	−5.20	59.8	−0.1	62.0	47.6
Seattle	1.73	−1.33	6.42	−4.87	41.6	−5.4	46.7	36.4

Precipitation range in 20 cities, in inches

Table shows range observed 33.3% of time. Rainfall heavier 33.3% of time, lighter 33.3% of time.
Computed by U. S. Weather Bureau (based on historical records of actual precipitation)

City	Apr.	Mid Apr.-Mid May	May	Mid May-Mid June	June	Mid June-Mid July	July	Mid July-Mid Aug.	Aug.	Mid Aug.-Mid Sept.	Sept.*	Mid. Sept.-* Mid. Oct.	Oct.	Mid. Oct.-Mid. Nov
Atlanta	2.82/5.10	2.48/4.72	2.14/4.33	2.50/4.38	2.87/4.43	2.93/4.62	2.99/4.80	2.89/4.90	2.79/5.00	2.24/4.30	1.60/3.60	1.64/3.35	1.59/2.90	2.01/3.38
Baltimore	2.58/4.20	2.76/4.30	2.94/4.40	2.73/4.42	2.52/4.44	2.57/4.71	2.61/4.98	2.91/5.32	3.20/5.66	2.65/4.51	2.10/3.36	1.88/3.57	1.66/3.77	1.16/3.45
Birmingham	2.94/5.07	3.05/4.81	3.16/4.55	2.90/4.70	2.64/4.84	3.29/5.18	3.04/5.53	3.44/5.39	2.92/5.25	2.32/4.47	1.71/3.69	1.62/3.14	1.52/2.58	1.84/3.24
Boston	2.39/4.40	2.58/4.29	2.39/3.50	2.42/3.84	2.09/3.50	2.35/3.76	2.61/4.02	2.60/4.36	2.59/4.70	2.32/4.20	2.04/3.70	2.26/3.88	2.49/4.07	2.62/4.26
Chicago	2.19/3.13	2.24/3.56	2.16/4.00	2.29/3.83	2.42/3.67	2.46/3.66	2.49/3.65	2.31/3.65	2 13/3.65	2.11/3.70	2.09/3.75	1.84/3.42	1.50/3.10	1.59/2.95
Cincinnati	2.34/3.60	2.42/3.85	2.49/4.10	2.59/4.30	2.69/4.50	2.54/4.10	2.39/3.70	2.32/3.95	2.24/4.20	2.02/3.64	1.79/3.08	N.A.	1.49/2.90	1.74/3.28
Cleveland	2.20/3.27	2.27/3.38	2.33/3.49	2.17/3.53	2.00/3.56	2.24/3.82	2.47/4.08	2.15/3.84	1.83/3.60	2.07/3.51	2.30/3.41	2.03/3.29	1.75/3.16	1.79/2.97
Dallas	2.66/5.50	2.82/5.38	2.99/5.25	2.39/4.85	1.79/4.45	1.59/3.72	1.39/3.00	1.30/2.89	1.22/2.78	1.50/2.94	1.77/3.10	1.66/3.30	1.55/3.50	1.60/3.25
Denver	1.34/2.40	1.48/2.65	1.62/2.90	0.64/2.32	0.67/1.75	0.94/1.88	1.21/2.00	1.04/1.86	0.87/1.73	0.60/1.39	0.52/1.05	0.57/1.08	0.62/1.10	0.46/0.89
Detroit	1.79/2.73	2.14/3.20	2.49/3.67	2.66/3.88	2.84/4.10	2.46/3.90	2.09/3.70	1.94/3.54	1.79/3.38	1.80/3.41	1.82/3.44	1.72/3.02	1.63/2.69	1.70/2.66
Kansas City	2.39/3.40	2.82/4.40	3.24/5.40	3.42/5.82	3.61/6.25	3.19/5.47	2.77/4.69	2.74/4.84	2.70/5.00	2.84/5.00	2.99/5.00	2.34/4.84	1.69/4.07	1.48/3.21
Los Angeles	0.22/0.90	0.14/0.62	0.05/0.35	0.02/0.18	0.00/0.02	0.00/0.01	0.00/T	0.00/T	0.0/ T	0.00/0.02	T/0.03	0.08/0.32	0.15/0.60	0.20/0.95
Minneapolis	1.69/2.60	2.16/3.29	2.64/3.98	2.89/4.49	3.14/5.00	2.64/4.50	2.14/4.00	2.10/3.85	2 1w/3.70	2.24/3.78	2.29/3.85	1.79/3.15	1.29/2.45	0.98/2.01
New Orleans	2.66/5.00	2.65/5.12	2.64/5.25	3.18/5.88	3.72/6.50	4.54/6.95	5.37/7.40	4.90/7.08	4.44/6.75	3.78/6.12	3.11/5.50	2.55/4.81	1.99/4.12	2.34/4.40
New York	2.47/3.78	2.50/3.90	2.54/4.02	2.45/3.91	2.36/3.80	2.81/4.25	3.26/4.70	2.99/4.95	2.89/4.70	2.46/4.30	2.21/3.40	2.15/3.76	2.09/4.13	2.15/4.04
Philadelphia	2.49/3.82	2.44/4.11	2.39/4.40	2.54/4.25	2.69/4.10	2.94/4.24	3.19/4.37	2.99/4.91	2.79/5.45	2.44/4.62	2.09/3.90	2.04/3.85	1.99/3.80	2.18/3.65
Pittsburgh	2.29/3.40	2.39/3.58	2.49/3.75	2.68/3.98	2.86/4.20	2.79/4.35	2.72/4.50	2.52/4.15	2.32/3.80	2.20/3.30	1.87/2.80	1.98/3.00	2.09/3.20	1.96/2.96
St. Louis	2.59/4.10	2.86/4.65	3.13/5.20	2.96/5.25	2.79/5.30	2.60/4.78	2.41/4.25	2.28/4.18	2.14/4.11	2.12/3.84	2.09/3.58	1.86/3.42	1 69/3.25	1.78/3.28
San Francisco	0.67/1.54	0.44/1.12	0.18/0.69	0.09/0.37	0.00/0.05	0.00/0.03	0.00/0.01	0.00/0.00	0.00/0.00	0 00/0.13	0.00/0.26	0.10/0.73	0.19/1.20	1.12/2.25
Seattle	1.64/2.90	1.53/2.45	1.42/2.00	1.09/1.86	0.76/1.73	0.48/1.20	0.19/0.67	0.18/0.78	0.18/0.90	0.62/1.55	1.07/2.20	1.70/2.85	2.32/3.50	3.07/4.55

T—Traces (Less than 0.005 inches)

Mean temperature range in 20 cities, in degrees F.

Table shows range observed 25% of time. Mean temperature higher 37.5% of time, lower 37.5% of time.
Computed by U. S. Weather Bureau (based on historical records of actual temperature)

City	Apr.	Mid Apr.-Mid May	May	Mid May-Mid June	June	Mid June-Mid July	July	Mid July-Mid Aug.	Aug.	Mid Aug.-Mid Sept.	Sept.*	Mid. Sept.-* Mid. Oct.	Oct.	Mid. Oct.-Mid. Nov.
Atlanta	60.9/62.6	64.9/66.3	69.0/70.5	73.5/74.6	77.3/78.1	78.5/79.3	79.0/79.9	78.9/79.9	78.6/79.1	76.3/78.1	72.9/75.4	68.2/70.2	62.3/63.8	56.6/58.2
Baltimore	51.9/53.6	57.5/59.0	63.4/64.6	68.2/69.5	72.5/73.8	75.2/76.6	76.2/77.5	75.5/77.3	73.6/75.7	71.1/73.3	67.1/69.4	62.2/64.4	56.4/58.3	50.9/52.6
Birmingham	61.1/62.6	64.6/65.3	68.4/70.2	72.4/74.5	76.8/78.1	78.4/79.7	78.9/80.0	79.0/80.3	78.5/79.8	76.6/78.5	73.3/75.6	68.5/70.7	62.2/64.2	56.2/58.5
Boston	46.7/48.3	51.5/53.1	56.7/58.4	56.8/58.6	66.3/68.1	69.6/71.1	70.2/74.1	72.1/73.4	70.9/72.1	67.6/69.2	63.3/65.4	58.9/61.0	54.2/56.2	49.3/51.3
Chicago	47.5/48.8	52.7/54.7	57.9/60.5	63.1/66.1	68.0/71.2	71.6/74.0	73.7/75.1	73.8/75.4	71.7/72.0	68.8/70.7	64.5/66.7	59.3/61.7	52.8/55.3	45.9/48.6
Cincinnati	51.4/53.3	56.4/58.6	61.5/64.0	65.2/67.0	71.2/73.0	73.4/75.2	74.1/75.8	73.9/75.7	72.5/74.4	70.2/72.1	66.5/68.4	61.2/63.3	55.9/57.1	48.6/50.9
Cleveland	46.2/47.8	51.8/53.9	57.9/60.3	63.5/65.7	68.2/70.2	71.2/73.0	72.7/74.2	72.5/74.2	70.9, 72.7	68.5/70.6	64.7/67.1	59.5/61.8	53.5/55.6	47.1/49.3
Dallas	64.2/67.3	68.4/71.1	72.6/75.0	77.3/78.8	81.1/82.2	83.3/84.8	84.5/86.4	85.6/87.3	85.1/86.7	82.3/83.9	78.1/79.7	73.8/75.1	68.5/69.4	61.4/63.1
Denver	46.3/48.6	51.1/53.4	55.2/57.4	60.0/62.1	65.4/67.5	69.7/71.5	72.1/73.7	72.5/74.0	71.8/72.2	67.3/78.6	62.2/63.4	56.7/58.3	50.8/52.8	44.5/47.2
Detroit	45.6/47.1	51.0/52.8	56.5/58.7	62.3/64.4	67.3/69.9	70.6/72.1	72.5/73.5	72.3/73.6	71.0/72.5	67.5/69.5	63.0/65.6	57.8/60.2	51.9/54.1	45.8/47.9
Kansas City	54.7/56.7	59.9/61.7	64.6/66.4	69.4/71.2	74.2/76.0	78.0/79.6	80.0/81.5	80.2/81.8	78.4/80.1	74.6/76.6	69.7/71.9	64.4/67.0	58.1/61.2	50.7/53.9
Los Angeles	58.1/59.7	58.8/61.3	61.4/62.8	62.5/64.0	63.9/65.4	65.4/67.0	66.9/68.4	67.5/68.9	6..4/68.6	66.8/68.1	65.9/67.3	64.4/65.9	62.7/64.2	60.5/62.1
Minneapolis	44.7/47.9	51.3/54.4	57.2/60.2	62.2/64.9	66.6/69.1	70.3/72.5	72.9/74.9	73.2/75.0	70.8/72.3	66.3/68.4	61.0/63.6	55.5/58.3	49.8/51.7	40.4/44.5
New Orleans	67.4/69.1	70.7/72.1	73.8/74.9	77.0/78.1	79.9/80.9	81.0/81.9	81.4/82.3	81.8/82.7	81.8/82.7	80.8/81.9	78.5/79.7	75.1/76.5	70.5/71.9	64.6/66.8
New York	49.0/51.0	54.6/56.3	60.6/62.1	65.9/67.5	70.4/72.2	73.6/75.9	75.2/76.3	75.1/76.3	73.6/74.9	71.0/72.5	67.4/69.0	62.7/64.3	57.0/58.6	51.8/53.2
Philadelphia	50.8/52.6	56.2/58.0	62.3/64.0	67.5/69.2	71.5/73.1	74.1/75.4	75.8/76.6	75.1/76.3	74.5/73.3	72.1/70.6	66.8/68.5	61.6/63.5	55.6/57.6	50.3/52.3
Pittsburgh	48.0/49.8	53.1/55.1	58.7/60.9	63.5/65.8	67.4/69.7	70.2/72.0	71.4/72.8	71.0/72.4	69.3/70.9	67 2/68.9	64.0/65.9	58.8/60.9	52.0/54.4	46.2/48.2
St. Louis	54.5/57.0	59.8/63.3	64.0/66.6	68.7/71.5	73.5/76.2	76.9/79.0	78.7/80.2	78.5/80.1	76.7/78.5	73.6/75.6	69.1/71.2	64.0/66.3	58.1/60.5	51.0/53.9
San Francisco	53.2/55.0	54.3/55.9	55.9/57.4	57.5/59.1	58.8/60.5	59.6/61.0	59.7/60.9	59.5/60.7	60.1/61.2	60.9/62.2	61.3/62.8	60.4/62.0	58.5/60.2	56.4/57.9
Seattle	48.2/49.9	51.0/52.9	54.2/56.3	56.9/58.5	59.3/60.4	61.7/62.7	63.6/64.6	63.8/65.0	62.7/64 1	60.8/62.0	58.0/59.0	54.8/56.1	51.0/52.5	41.8/43.8

* Ranges for Sept. and Mid. Sept.-Mid. Oct. published March 24 issue for all cities except Baltimore, Cleveland and Philadelphia were actually for Oct. and Mid. Oct.-Mid. Nov. respectively. Correct ranges for these 30-day periods are shown here.

Tracing design on glass cloth from metal loft at A. O. Smith Corp., Rochester Works.

Valuable originals protected against wear and tear

At the A. O. Smith Corp.'s Rochester (N.Y.) Works, large drawings are made exactly to scale on glass cloth. Since these drawings often cost several hundred dollars each, A. O. Smith naturally does not wish to expose them to possible damage during print-making and to the wear and tear of excessive handling. Instead, they use intermediates made on Kodagraph Autopositive Paper.

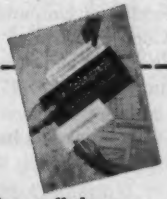
Costing but a few cents a square foot, Autopositive produces positive photographic prints directly from the original drawings — without a negative step or darkroom handling. It can be exposed in standard print-making equipment and processed in standard photographic solutions. (A. O. Smith uses a vacuum-frame printer, which accommodates drawings up to 8 x 4 feet in size.)

No worries with Autopositive intermediates — they turn out sharp, legible shop prints time after time. Their dense photographic black lines do not smudge or smear. And they can be run at uniform, practical speeds in the company's direct-process machine.

In addition, A. O. Smith keeps an "Autopositive File" showing the history of changes in all their drawings. Before each revision, an Autopositive intermediate is made. Later on, direct-process prints showing the complete story of each design can be made from the intermediates as needed.

Kodagraph Autopositive Paper

"THE BIG NEW PLUS" in engineering drawing reproduction



Shows all the ways you can save with Kodagraph Autopositive Paper.

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Industrial Photographic Division, Rochester 4, N. Y.
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Kodak

HOW TO HANDLE
WET JOBS

BRIDGE PIER
COFFERDAM

Winona, Minn.

Contractor: James Construction Co.

BEFORE DEWATERING. Earth cofferdam is shown around damaged and tilted center pier of bridge which had been washed away by Mississippi Spring floods. Griffin Wellpoint system (see photo, right) has 640-ft perimeter.

WITHIN 12 HRS, the 2 pumps have brought water below subgrade, wresting 5000 gal per min from the very coarse sand and gravel.

IN INSTALLATION, the wellpoints on this job had to be driven the last few feet, through gravel. Fortunately, Griffin's is the only point specifically designed for driving as well as jetting. Contractor was thus enabled to "breeze through" what might otherwise have proved a big headache.

GRIFFIN
WELLPOINT CORP.
881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.
In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Halifax

INTERNATIONAL

Atom Power Plants Proposed for India

Dr. H. J. Bhabha, member of the Atomic Research Wing of the Indian Planning Commission, has announced plans to set up an atomic power plant with a generating capacity between 60,000 and 100,000 kw within the next six years.

Exploratory talks, he said, were already in progress with the U. S. Atomic Energy Commission.

The Indian scientist refused to disclose the nature of his "top secret" talks with AEC but hinted that the first power plant would be followed by similar projects, each of which will cost India around $40,000,000.

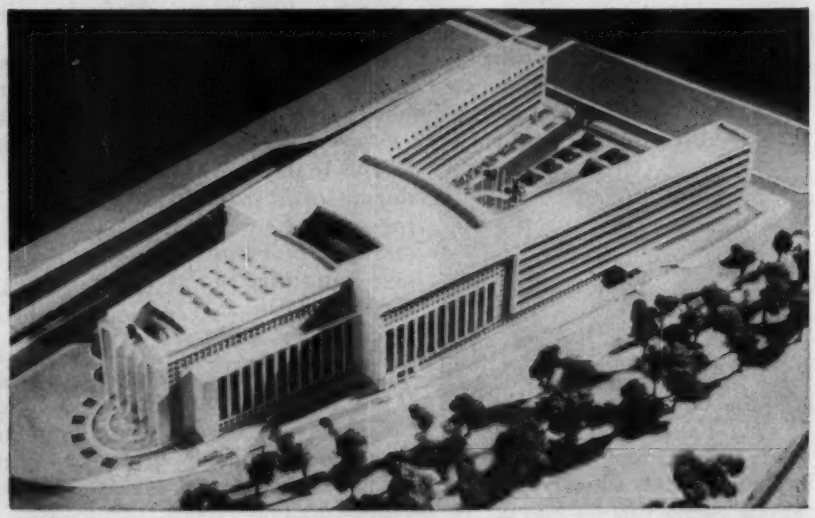
Britain Develops 100-kw Prototype Wind Power Plant

In England a new type of wind-mill has a generating capacity of 100 kw and the turbine is driven by a rapidly moving column of air, not by any mechanical linkage with the propeller. The wind plant works on the "depression" principle and in the ordinary sense the propeller blades are not strictly propellers at all. The blades are hollow and as the force of the wind makes them rotate, air is discharged through blade tip outlets by centrifugal force. This air has to be drawn up through the main column of the plant to be discharged at the blades tips. It is this flow that turns a turbine in the base of the shaft.

Clutch, gearing and shafts from the propeller blades to the turbine are eliminated and the propeller blades are free from any mechanical linkage with the turbine that might slow down their spinning. The windmill is designed so that when the wind speed is 30 mph, the propeller runs at 100 rpm and 58,500 cu ft of air pass through the turbine per minute. When the wind speed is greater than this, the pitch of the blades are automaticly adjusted so that the speed of rotation and volume of air passing through the turbine remain constant.

With wind speeds between 30 and 65 mph output is held at 100 kw when wind speeds are over 65 mph the blades are feathered and rotation ceases. With wind speeds below 30 mph, output decreases rapidly.

Propeller blades are 40 ft long and

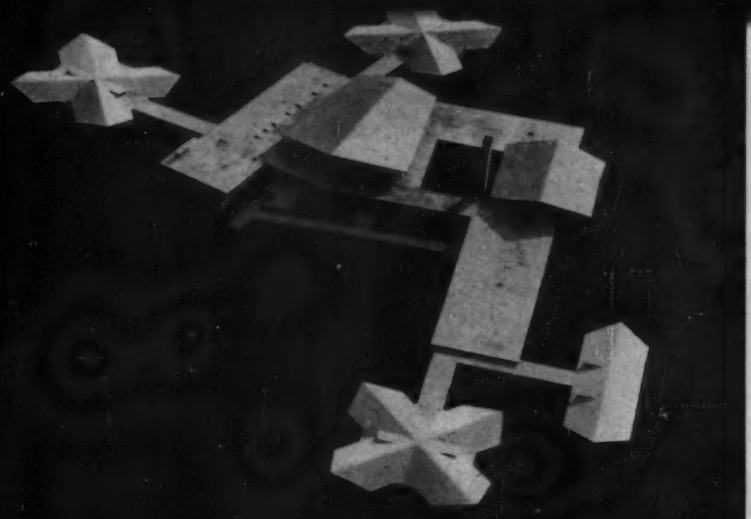


Plans for New NATO Headquarters in Paris

Plans and model for the future permanent headquarters of the North Atlantic Treaty Organization have been submitted to the City of Paris for formal approval. With the issuance of a building permit work will get under way this summer and be completed in two years time.

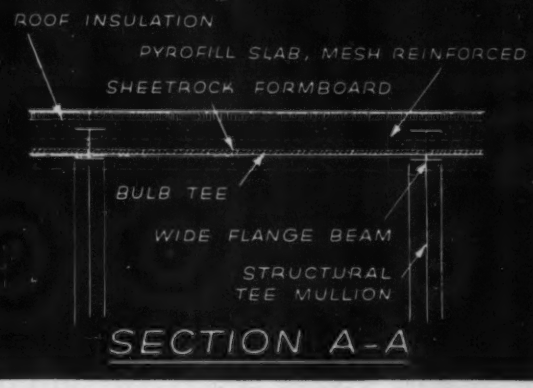
Site of the new headquarters is at the Place de la Porte Dauphine, at the end of Avenue Foch and between the Boulevard Lannes and Avenue Marechal Fayolle. The new six-story building will provide basement parking for 400 vehicles and will house 900 offices, a number of committee rooms and the main Council Chamber of NATO. Radio, TV, film, press and restaurant facilities among many others will be incorporated in the building. Up until the present time NATO headquarters have been in the temporary buildings of the Palais de Chaillot.

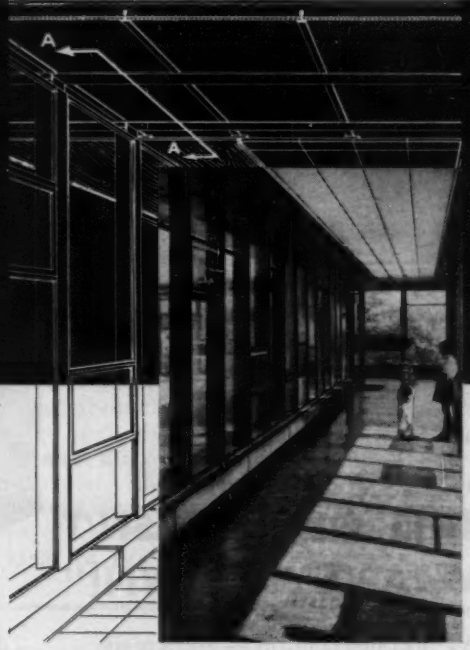
Architect for the project is Jacques Carlu, designer of the permanent building of the Palais de Chaillot.



award winning† school design forecasts the future

†1951 special feature award, The School Executive Magazine; 1954 silver medal award, Architectural League of New York





This PYROFILL roof deck has bulb tees installed between the wide flange beams, rather than over them, providing the lateral strength required for the corridor structures, eliminating the need for purlins. Total thickness of the roof structure is minimized to fulfill the aesthetic requirements of the design.

Heathcote Elementary School, Scarsdale, N.Y.
Architects and Engineers: Perkins & Will
General Contractor: Arthur D. Stolle-Delval
PYROFILL Roof Deck: Keystone Fireproofing

Sheetrock* Pyrofill* roof decks

for rigidity, lightness, fire-resistance, speed of application.

STRUCTURAL RIGIDITY—Bulb tee sections used to reinforce the PYROFILL slab serve—along with the gypsum—to provide lateral stiffening of the structural steel supports without increasing the depth of the structure.

LIGHTWEIGHT—SHEETROCK PYROFILL weighs only 10 to 12 lbs. per square foot in 2½ inch thickness, thus permitting important savings on structural steel and footings.

STRONG AND DURABLE—The design as recommended has a high factor of safety. Thirty-year-old PYROFILL decks are still giving excellent service today!

LOW-COST—SHEETROCK PYROFILL provides an incombustible, insulated deck at lower cost than other types of construction claiming equal benefits.

INCOMBUSTIBLE—PYROFILL is made of fireproof gypsum, so it will not burn. Insurance rates are often 30% less than for combustible constructions.

FAST INSTALLATION—PYROFILL sets in less than an hour and is then capable of carrying normal construction loads. A single crew can pour from 20,000 to 30,000 square feet per day, ready for roof covering.

For further information refer to Sweet's Catalog, Section $\frac{2e}{Un}$, contact the authorized PYROFILL contractor in your area, or write United States Gypsum, Dept. ENR-1, 300 West Adams Street, Chicago 6, Ill.

*T. M. Reg. U. S. Pat. Off.

UNITED STATES GYPSUM

Pyrofill roof decks fear no fire

The Greatest Name in Building

ORTON
Torque-Control

"The most important thing I know about cranes is . . .

THIS ONE DOESN'T WEAR ME DOWN!"

Air-operated controls — and a crane that is always ready to go to work. Torque-Controls for smooth, accurate handling . . . and almost no clutch wear or adjustment. Short wheel base and only *six tires* so that it can turn and travel in any aisle big enough *for a truck.*

All ORTON cranes now have *Torque-Control*

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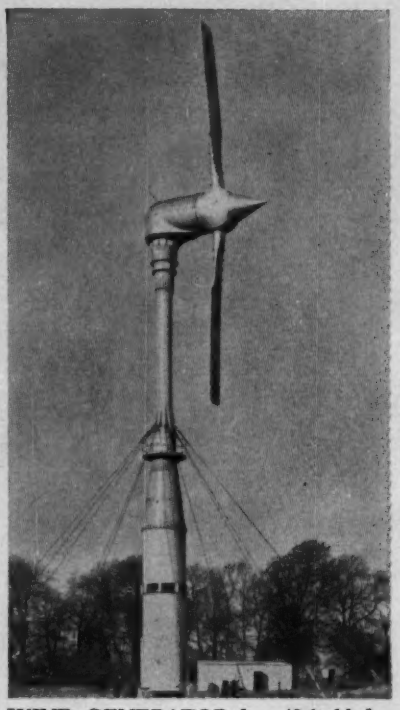
- Aero (Rubber Tired) Cranes — Catalog No. 85
- Powermatic (Crawler) Cranes — Catalog No. 87

ORTON

CRANE & SHOVEL COMPANY
608 S. Dearborn St. • Chicago 5, Ill.



WIND GENERATOR has 40-ft blades.

the axis of rotation is 100 ft above the ground. The propeller housing and gears are rotated with the wind direction by bull gear and pinion (at the top of the shaft) actuated by a small electric motor which in turn is electrically actuated by a wind speed and direction indicator. Each propeller blade weighs 1,600 lb and the complete windmill weighs 60 tons.

Built for the British Electricity Authority, windmill was erected by Enfield Cables, Ltd., London, with subcontractors de Havilland Propellers, Ltd., Hatfield, Herts., England.

International Briefs . . .

• **Price tag for publicity**—A U.S. oil company reportedly has offered to build—at its own expense—a 279-mi speedway from Rome to north Italy. In return, the oil firm wants exclusive rights to own all filling stations and way-side publicity along the road.

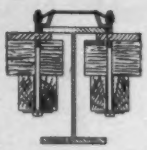
• **International Exhibition**—An international exhibition of materials and equipment is scheduled to be held in Paris from June 25 to July 10. Its objectives: (1) to foster international exchange of views among members of the building and allied industries; (2) to permit contacts between producers, customers and the general public; (3) to forecast future markets; (4) to provide for future studies, conferences and exhibitions.

5 SUPERIOR WAYS OF HANGING FORMS FROM STEEL BEAMS AND GIRDERS

(NOT FIREPROOFED)

Especially designed to meet field conditions on BRIDGE SUPERSTRUCTURES

Standard Coil Hanger Frame



When hanging forms where specifications do not permit any hanger wire to be exposed after stripping, use Superior *Standard* Hanger Frames. Detail at left shows their use with double ledgers, ½" coil bolts, and flat washers. Total safe load on both bolts is 10,000 lbs., or 5,000 lbs. per bolt.

Plate Hanger Frame

FOR ADJUSTMENT FROM TOP OF DECK

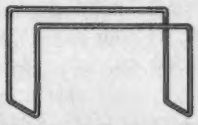
The Plate Hanger Frame, shown at left, has metal plates with a punched hole instead of wire coils. The Coil Bolts are passed through the holes and secured from above with coil nuts. The plates provide adequate bearing for the nuts, which being square will not turn when the bolt is removed. The installation and necessary adjustment to bring the deck forms tight against the flange are from above the deck. The total safe load on both coil bolts is 10,000 lbs., or 5,000 lbs. per bolt.

Special Hanger Frame

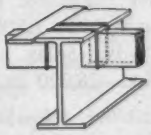
AT LOW HAUNCH

AT HIGH HAUNCH

The design of certain bridge superstructures allows for the permanent deflection of the beams or girders due to the pre-calculated dead load. This deflection is compensated by a concrete haunch on the upper flange, which varies in depth. Superior *Special* Coil Hanger Frames were developed to meet this field condition, at the same time avoiding any exposed hanger wire. The extent to which the ½" Coil Bolts are threaded into the coils allows for these varying haunch depths from maximum to zero. (See detail at left.) Total safe load per frame is 10,000 lbs., or 5,000 lbs. per ½" bolt .

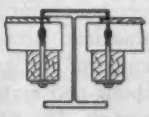


Wire Beam Saddle



Wire Beam Saddles are used to hang centering joists from structural steel beams when the beams are not fireproofed with concrete. On non-fireproofed structures the load is determined by the allowable spacing of centering joists rather than the capacity of the hanger. Available in three gauges and sizes as required. Will carry safely, total loads of 2,500 lbs. to 6,000 lbs. Layouts and estimates will be sent upon receipt of plans or quantities. No obligation.

Coil Beam Saddle



Superior Coil Beam Saddles are used, as shown at left, where hanger wires may be cut after stripping the forms. The Coil Bolts allow for any variation in lumber and flange thickness and tightening the bolts pulls the forms tightly against the flanges. Forms are easily stripped. Safe load is 6,000 lbs. per saddle, or 3,000 lbs. for each ½" Coil Bolt. Coil Beam Saddles are also furnished for ¾" and 1" bolts.

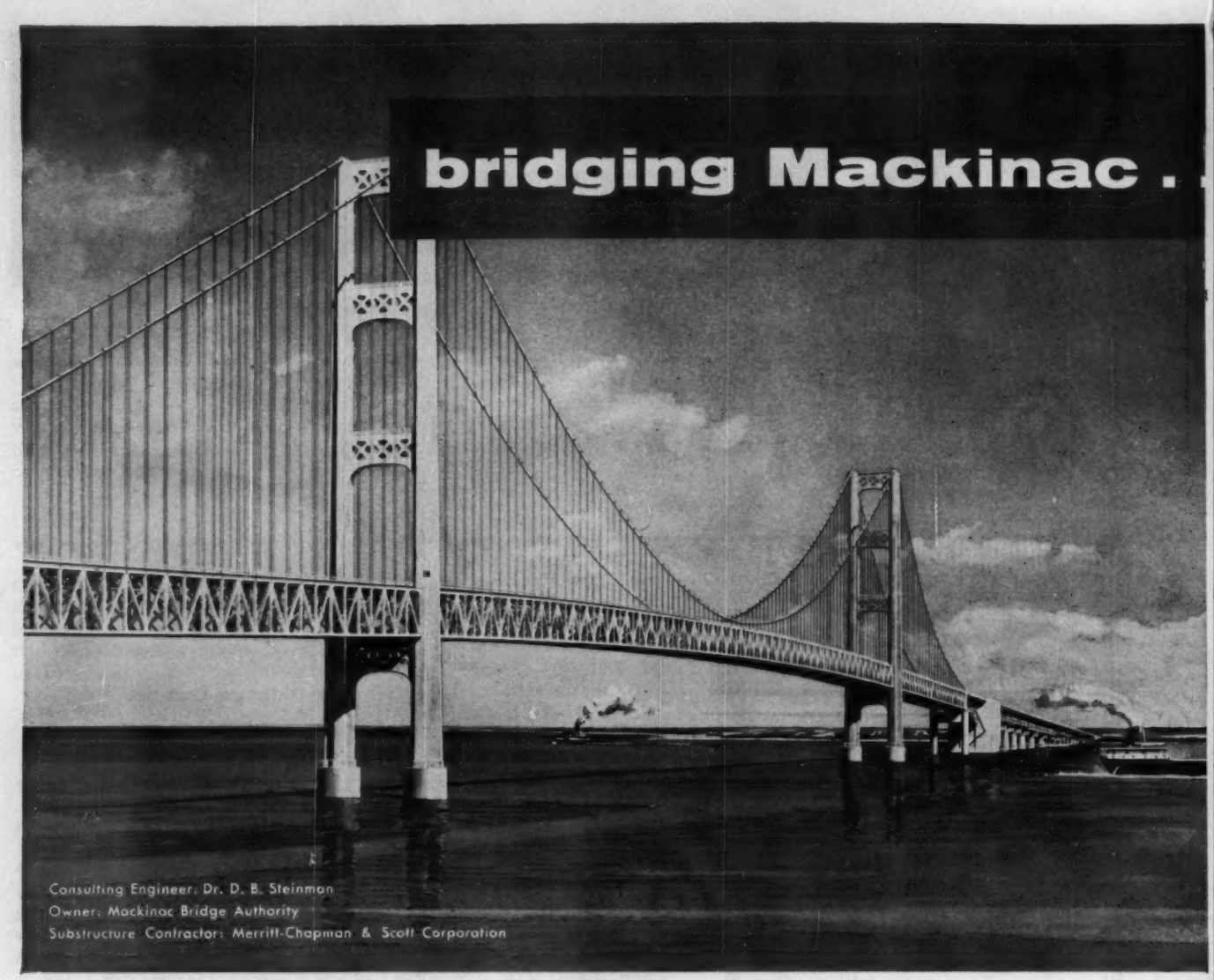
WORKING PARTS (Bolts and washers) are returnable. Layouts and estimates for Superior Hangers are available without obligation.

SUPERIOR CONCRETE ACCESSORIES, INC.

4110 Wrightwood Avenue, Chicago 39, Illinois

New York Office
1775 Broadway, New York 19, N. Y.

Pacific Coast Plant
2100 Williams St., San Leandro, Calif.


bridging Mackinac . .
Consulting Engineer: Dr. D. B. Steinman
Owner: Mackinac Bridge Authority
Substructure Contractor: Merritt-Chapman & Scott Corporation

Designer's rendering of Mackinac Bridge, St. Ignace, Michigan. Total length: 26,444 feet.

A great new link in our national highway system, the Mackinac Bridge, will soon span the Straits of Mackinac and connect the two peninsulas of Michigan. Scheduled for completion late in 1957, this suspension bridge—the world's longest from anchorage to anchorage—will rest entirely on Prepakt Concrete. Some 440,000 cubic yards are being placed for the 34 foundation piers.

Prepakt was selected for this five-mile project because of its greater—

Economy. Savings result from the use of a smaller, more economical plant which need mix only the Intrusion Mortar. Coarse aggregate, over 60% of the total concrete volume, is placed directly into cofferdams by self-unloading boats. For the same reason, supply problems are simplified and placement can continue uninterrupted during rough weather. Finally, Prepakt Concrete with less cement content is of better quality than tremied concrete.

Speed. Rapid concrete placement by Prepakt's method has produced these new records for underwater placement from a single floating plant: 8-hour shift—1,800 cu. yds.; 24-hour day—5,040 cu. yds.; 5-day week—20,560 cu. yds.; 8-day period—28,320 cu. yds.

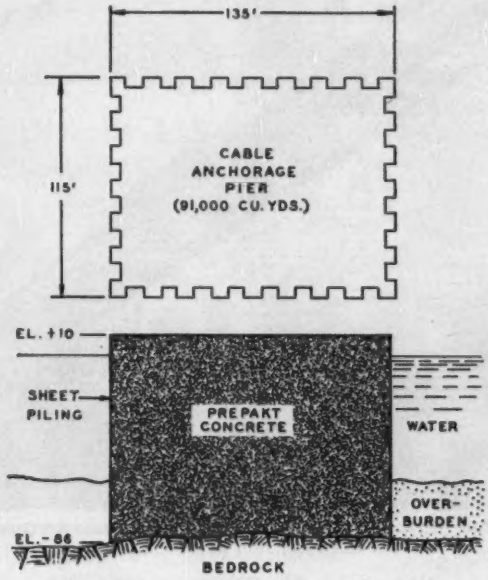
Flexibility. Prepakt Concrete does not require a continuous pour—placement can be halted and restarted on short notice at little added expense and with no sacrifice in quality. This proved a vital advantage during late 1954 when storms suspended operations repeatedly.

Mackinac Bridge will soon stand as another example of the multiple advantages of Prepakt methods and materials for all types of concrete structures. This $100-million bridge, believed for many years to be impractical if not impossible, is a tribute to its advanced design and the use of modern construction methods. A brochure describing the building of the Mackinac Bridge in greater detail is available upon request.

[*Intrusion* and *Prepakt* are trademarks of Intrusion-Prepakt, Inc. Intrusion-Prepakt methods and materials are covered by U.S. Pat. 2313110, 2655004, 2434302 and others, also patents pending.]

. on Prepakt Concrete

Prepakt method cuts cost of piers, sets new concrete placement records

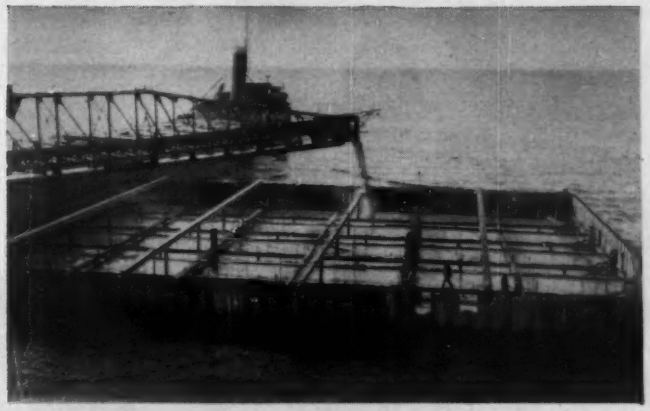


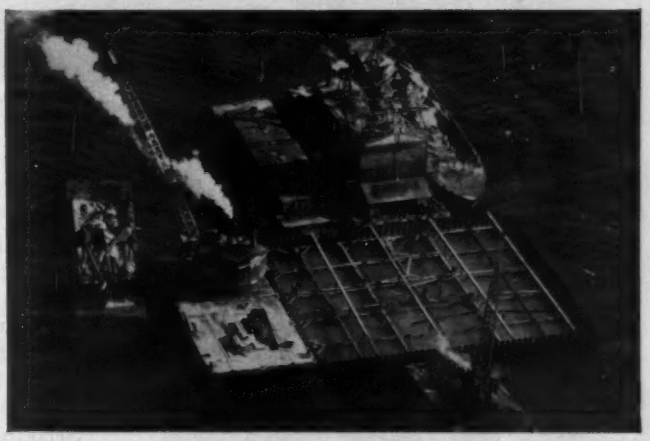
The 66,500-ton bridge superstructure is supported by 34 piers, some extending to more than 200 feet below the water surface. Concrete for these piers, made by Prepakt method of consolidating preplaced aggregate with Intrusion Mortar, was placed by the substructure contractor, Merritt-Chapman & Scott Corporation.

Almost all piers used cofferdams of interlocking sheet piling driven to bedrock. After removal of overburden, aggregate was then deposited into cofferdams from 10,000 to 15,000 ton self-unloading boats at rates up to 2,500 tons per hour. Final step was to consolidate stone with Intrusion Mortar which was batched, mixed and pumped from a Prepakt Floating Plant.

Use of the Prepakt technique introduced economies and kept the project on schedule despite the worst construction weather in many years.

Prepakt maintains a complete field construction organization plus an engineering service and functions as prime or subcontractor. For further information, write: The Prepakt Concrete Co., Room 779-Y, Union Commerce Building, Cleveland.





(Top) Unloading stone directly into cofferdam for massive cable anchorage pier. (Bottom) During concreting operations, Prepakt Floating Plant is tended by cement-Alfesil barge (left) and sand barge (right).

CONTRACTORS PREPAKT ENGINEERS

THE PREPAKT CONCRETE CO.
DIVISION OF INTRUSION-PREPAKT, INC.

MAIN OFFICE: CLEVELAND 14, OHIO
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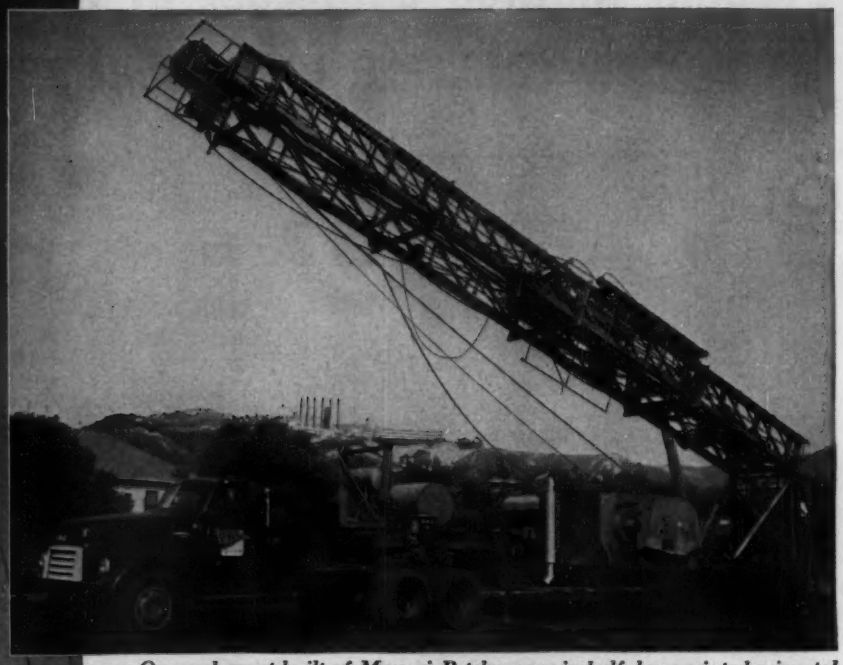
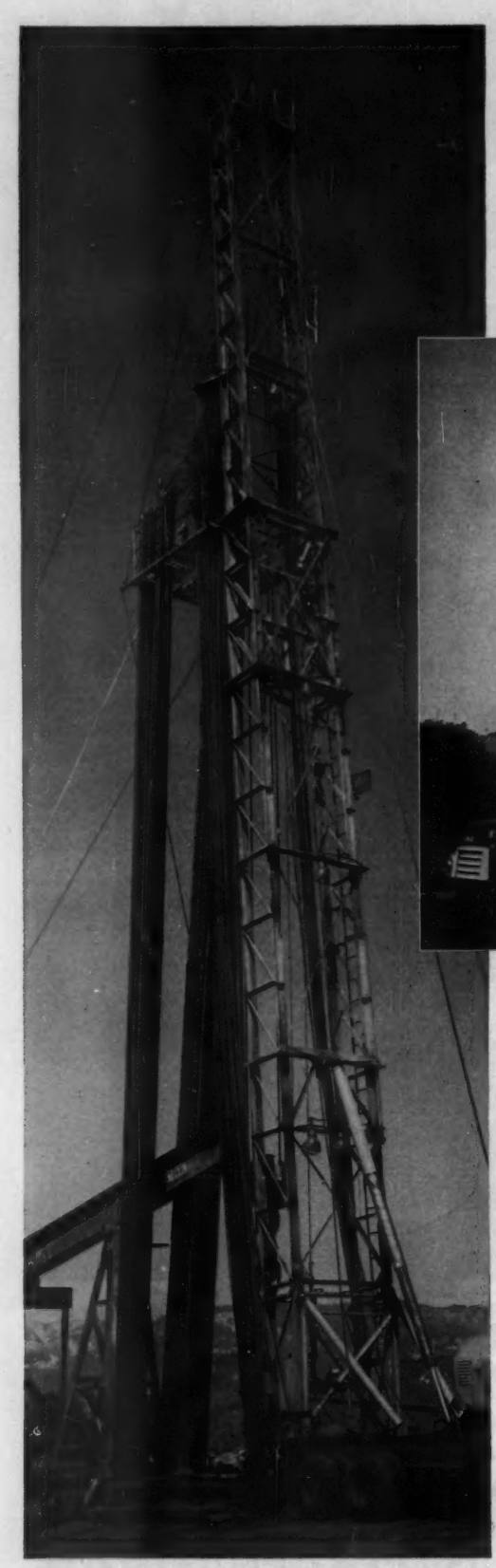
Lightweight Mast

DOES A HEAVYWEIGHT JOB



On road, mast built of Mayari R telescopes in half, lowers into horizontal position on trailer much like extension ladder on fire truck.



In operation, mast is 90 ft high. All-Mayari R construction gives it hook-load capacity of 210,000 lb.

The mast for this portable oil-well-servicing rig has to be strong. Pulling up a 10,000-foot string of tubing from an oil well is no job for a weakling, especially if the load is 100,000 lb or more. On top of that, when it breaks loose from the bottom of the hole, the tubing lets go with a rush that bounces the mast like a boy on a pogo stick.

This mast has to be light, too, because it's a portable mast. A trailer carries it from job to job over public highways subject to weight restrictions.

Striking this balance between rugged strength and light weight was a made-to-order assignment for Mayari R low-alloy, high-strength steel. With 50 pct greater strength than carbon steel, Mayari R in lighter sections provided the 100-ton load capacity desired, while paring 20 pct deadweight from the mast. One more in the almost limitless variety of applications in which "Mayari R makes it lighter . . . stronger . . . longer-lasting."

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Mayari R *makes it lighter... stronger... longer lasting*

MEN AND JOBS

Gen. Kenneth E. Fields Appointed AEC Manager

Brig. Gen. Kenneth E. Fields, director of the Division of Military Application, Atomic Energy Commission, has been appointed general manager for the commission, effective May 1. Retiring from the Corps of Engineers this week to accept the appointment, he succeeds Maj. Gen. K. D. Nichols (U.S.A. Ret.), who will become an engineering consultant with offices in Washington, D. C.

For eight of the last ten years, Gen. Fields has been associated with the atomic energy program. First assigned to the Manhattan Project as assistant to the commanding general, he was later appointed assistant to the director, and then director, of the commission's Division of Military Application. He has held his present post since 1951.

During his two years of absence from the atomic energy field, Gen. Fields was assigned to the staff and faculty of the National War College and participated in the Military Assistance Program in Teheran, Iran. His World War II service included duty with the 11th Armored Division, the Infantry School at Fort Benning and the European Command.

Before the war, Gen Fields served in the Jacksonville, Fla., and New York districts of the Corps of Engineers and at the U. S. Waterways Experiment Station in Vicksburg, Miss. A 1933 graduate of the U. S. Military Academy, he later received Master of Science degrees from the Massachusetts Institute of Technology and the Harvard Graduate School of Engineering.

Gen. Nichols, a former district engineer of the Manhattan district, was in charge of the research, design, construction and operation of atomic bomb production plants during the early phases of the atomic energy program and was awarded the Distinguished Service Medal and the Order of the British Empire for his participation in the development of the atomic bomb. Before undertaking his present assignment, he was chief of the Armed Forces Special Weapons Project and was deputy director of guided missiles in the Office of the Secretary of Defense.

Hawaiian Dredging Company Shifts Its Top Executives

In a series of major changes in the top command of the Hawaiian Dredging Company, Walter F. Dillingham has stepped down from the presidency and become chairman of the board of directors. His eldest son, Lowell S. Dillingham, succeeds him as head of the Honolulu firm which has played an active role in the development of Pearl Harbor and other naval installations in the Pacific.

The retiring president is the sole survivor of the five founders of the company which was formed in 1902. Born in Honolulu, he was educated at Harvard and has been closely associated for many years with business and financial interests on Oahu.

Other changes in the company's management included the retirement of Charles F. Weeber as executive vice president and his election as financial vice president. E. C. Gray and A. A. Carswell, vice-presidents for several years, elected to board of directors.

Concrete Award Presented To N. Y. Consulting Firm

The Concrete Reinforcing Steel Institute has presented its 1955 award for outstanding accomplishment in the field of concrete design and construction to Di Stasio & Van Buren, New York consulting engineers. The award was made last week at the Institute's Thirty-First Annual Meeting in White Sulphur Springs, W. Va.

Highlights of the firm's achievements include its recent work on the design of the world's largest reinforced concrete floating drydock for the United States Navy, and its development of the flat plate concrete floor in 1941. Since its founding in 1923, the firm has participated in the design and construction of many major skyscrapers, schools and hospitals as well as public housing, stores and theaters.

(*Men & Jobs continued on page 58*)

STANDS UP TO SEVERE USE

and even abuse

One word describes a Hayward — ruggedness. Yes, it's as tough, strong, sturdy as a bucket can be — and even more so.

This Class K Clam Shell, for example, has the knack of loading itself up to the hilt — every time. No skimping here! No contact between closing mechanism and load. That means less rope wear. Less upkeep!

A Hayward bucket is built to make good — and it does. Extreme simplicity, little if any upkeep, high operating efficiency! Details on request. Write! THE HAYWARD COMPANY, 50 Church Street, New York 7, N. Y.

HAYWARD BUCKETS

CLAM SHELL • ELECTRIC • ORANGE PEEL • GRAPPLES

famous for performance since 1888

TIMBER-TREATING CYLINDERS

• Whatever your needs in pressure vessels—creosoting cylinders, bubble towers, gas scrubbers, pressure spheres, gas storage tanks, etc. —you can depend on COLE for vessels that are *correct* in design and permanently leakproof at the welded or riveted joints.

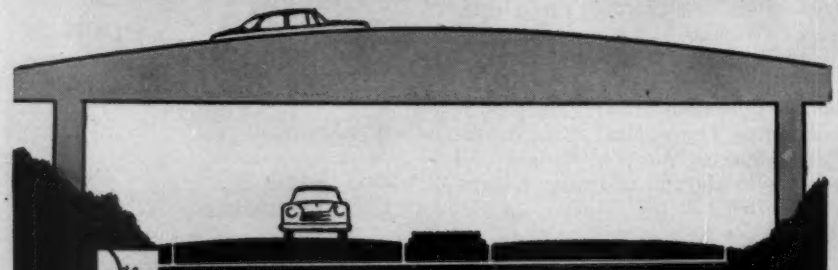
We also design and fabricate elevated tanks, acid tanks, dye-vats, digestors, standpipes, storage tanks, etc. Write for latest COLE catalog —*Tank Talk.*

Established 1854

R. D. COLE Manufacturing Co., Newnan, Ga.

• TANKS
• TOWERS
• CYLINDERS
• VESSELS
• STANDPIPES

For UNDERPASS DRAINAGE



SUBMERSIBLE EJECTOR
New! with 6" DISCHARGE!
A "Big Brother" to the famous 3" and 4" Pumps

FIG. SE-890

NO PUMP HOUSE REQUIRED
Capacities to 2000 GPM

The new ejector designed for completely submerged operation is constructed with the same engineering features that have made the 3" and 4" Submersible Ejectors so trouble-free and efficient. It can be supplied with 5" or 6" discharge, with heads to 70 feet and capacities to 2000 GPM.

The new pump has been developed to answer the need for low cost installations where large quantities of water must be drained quickly. It is particularly adapted for highway underpass drainage and is designed for continuous operation during flood periods. The NON-CLOG Impeller will handle 3½" solids.

Can be supplied with control systems having no moving parts in the pits. Multiple installations are furnished with controls to program the operation for load requirements.

CONSTRUCTION FEATURES:

Motor and bearings are hermetically sealed. The motor, housing, drive shaft and impeller — all of the working parts — are an integral and interchangeable unit and can be removed without disturbing the piping. They are not subject to corrosion, deterioration or injury when standing idle—regardless of weather conditions.

The NON-CLOG Impeller is of manganese bronze; pump shaft stainless steel; permanently sealed ball bearings; volute type casing of nickel iron; motor windings of special design and construction are permanently non-corrosive; motor housing machined and sealed to exclude dirt and water.

Ask for Bulletin SE 860 C

weil PUMP CO.

1528 NORTH FREMONT STREET • CHICAGO, ILLINOIS

W. G. Pietz

Raymond Concrete Pile Co. Changes Canadian Command

Raymond Concrete Pile Company has elected Wesley C. Pietz of Pittsburgh, Pa., as president and managing director of its Canadian subsidiary, Raymond Concrete Pile Company, Ltd., with headquarters in Toronto. Pietz joined the Raymond Company in 1927 and has been its Pittsburgh district manager since 1937.

He succeeds Julian A. Dickenson, who has been president and managing director of the Canadian subsidiary since 1953. Dickenson will continue as president of Raymond International Company, Ltd. of Toronto, and will be responsible for special construction projects in Canada and other areas.

Health Service Engineer Leaves for Post in Brazil

Alfred H. Wieters, assistant chief of the Water Pollution Control Program of the Public Health Service, Department of Health, Education and Welfare, left Washington last week to become a consultant to the Ministry of Health in Brazil. He will advise on legislative, technical and administrative problems in a national water pollution control program.

Wieters was commissioned in the Public Health Service in 1946 after serving for 20 years as chief sanitary engineer for the Iowa State Department of Health.

A graduate of the University of Kansas, he also holds an M.S. degree in sanitary engineering from Harvard. Before moving to Iowa, Wieters served as an engineer with the Kansas State Board of Health and as director of the division of sanitary engineering of the South Dakota Board of Health.

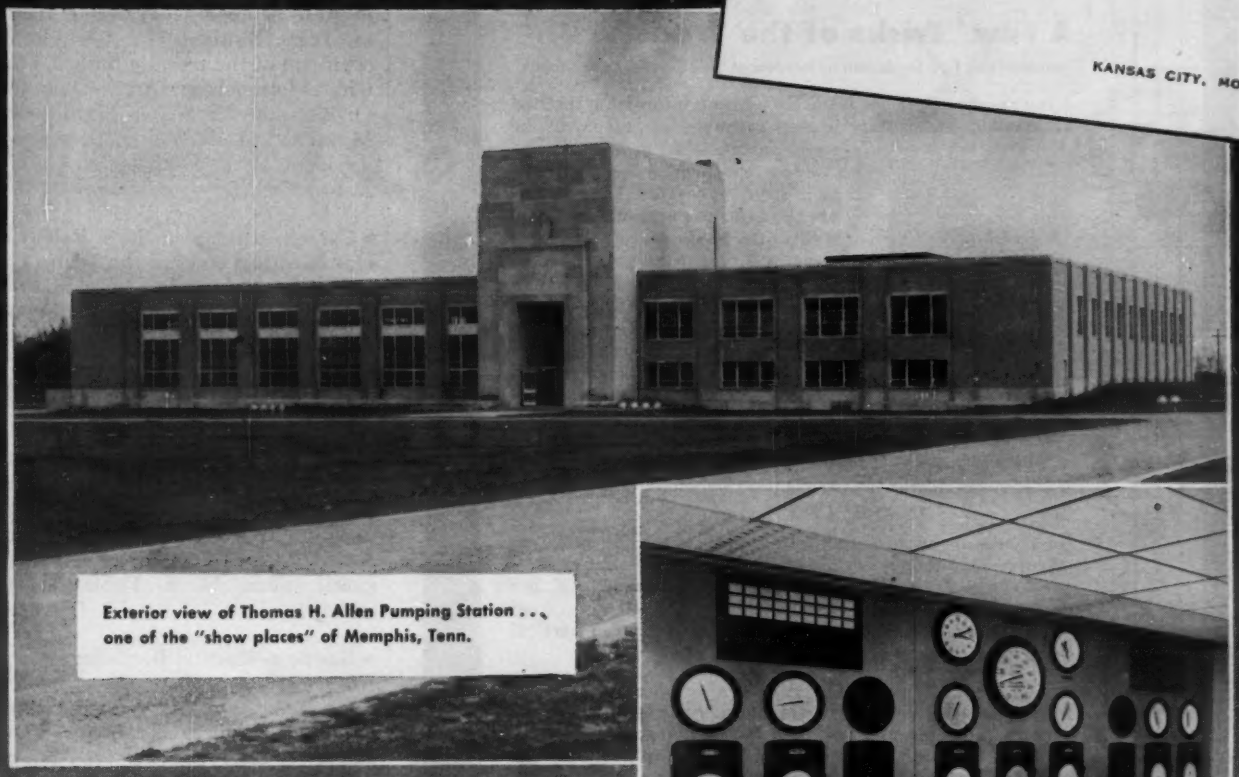
(*Men & Jobs continued on page 60*)

MEMPHIS, TENN.

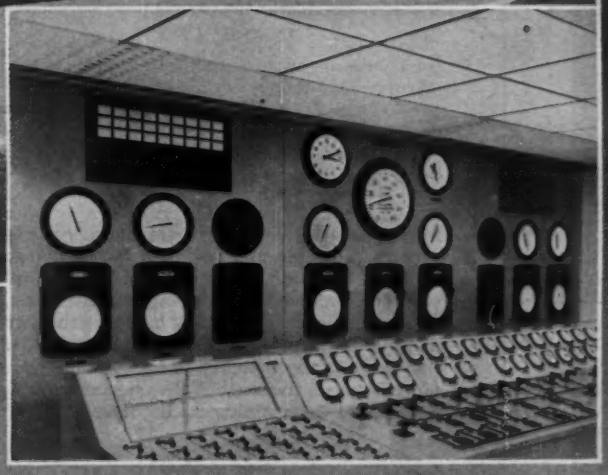
Thomas H. Allen Pumping Station

(COMPLETED IN 1953)

BLACK AND VEATCH
CONSULTING ENGINEERS
KANSAS CITY, MO.



Exterior view of Thomas H. Allen Pumping Station . . . one of the "show places" of Memphis, Tenn.



Central Instrument Panel with annunciators. Chronoflo receiving instruments meter raw water, high service flows, high service summated flow, station pressure, wash water level, and reservoir level.

This modern pumping station is a good example of the present-day trend in municipal water plant design.

The Thomas H. Allen Station with two older stations serves an area of 121.5 square miles and a population of over 450,000. It incorporates the last word in metering and control equipment, integrated and centralized for maximum efficiency of plant operation. All important system functions concerned with water flows, pressures, and levels are metered by Builders-Providence equipment installed by the sub-contractors, Industrial Heating & Plumbing Co. of St. Joseph, Mo.

We will be glad to send you full information on the broad Builders line of up-to-date equipment for up-to-date water works service. For complete details write Builders-Providence, Inc., Providence 1, Rhode Island.

BUILDERS-PROVIDENCE

DIVISION OF B-I-F INDUSTRIES, INC.

BUILDERS IRON FOUNDRY • PROPORTIONEERS, INC. • OMEGA MACHINE CO.

B-I-F METERS FEEDERS CONTROLS

THE SURVEYOR'S NOTEBOOK

Reporting on Unusual Surveying Problems and Their Solutions
Notekeeper: W. & L. E. Gurley, Established 1845

A Few "Tricks of the Trade"

Unusual Field Tips Suggested by Readers of "The Surveyor's Notebook"

A Louisiana engineer has come up with an interesting method of locating shot points during seismograph surveys. The shot location was practically inaccessible in the bayous. However, general direction was known from two points on a base. When the shot was sent off, considerable dirt and smoke were blown into the air; and two transits intersected the shot to give location close enough for practical purposes. (*Speaking of inaccessible sights,* the Gurley Telescopic Solar Transit quickly gets around obstructions with sun shots. Procedure of carrying a line forward with a Gurley Solar eliminates one man from a party. The time and labor saved "pay off" the instrument in a few seasons. Write for information on Model 112-RT.)

Gurley Telescopic Solar Transit

* * *

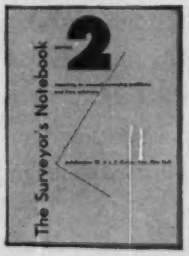
For night work, an automobile spotlight can aid the surveyor greatly. One engineer directs his vertically...uses suspended plumb lines at right angles to each other to plumb the beam. The beam is used for signaling when the transit party is to take the sight...sight is taken on the vertical beam when it appears in the sky.

* * *

Some engineers ask for horizontal stadia lines on their transit reticles. This permits use of a horizontal rod—or even a common tape—for measuring distance. Using a right angle prism or Locke hand level with a right angle, a line is laid off perpendicular to the line of sight; and two targets such as pins or range poles are set on this line so that they are exactly matched to horizontal stadia. Distance between the two can then be measured, giving a means of determining stadia distance.

* * *

Can you use these field aids? *Gurley can supply 50-pound test yellow nylon plumb bob cord, to add to the visibility of your string in poor lighting. Also a cord adjustor, which helps you make quick changes in line length in the field. Send 25 cents in stamps or coin for a set of cord and adjustor with a drawing showing how to use them.*



* *

"The Surveyor's Notebook" collection (Series Two) is packed with valuable tips like these. More than 40,000 surveyors and engineers are finding them helpful. Write for your free copy ...At the same time, why not send us your own story?

W. & L. E. GURLEY

Union Plaza, Troy, N. Y.

GURLEY Surveying and Scientific Instruments

MEN AND JOBS

Men and Jobs Briefs . . .

• **Associations**—New president of the Michigan Engineering Society is **Samuel D. Porter,** partner in McNamee, Porter & Seeley, consulting engineers in Ann Arbor . . . **Walter J. Terry,** of Terry Brothers, Inc., is elected chairman of the recently formed Twin City Metropolitan Area Excavators Division of the AGC, Minneapolis, Minn. . . . **O. Z. Wrenn, Jr,** becomes president of the Durham, N. C., Engineers Club.

• **Careers**—Sanitary engineer **Robert R. Harris,** former chief of the Water Pollution Control Basin Office in Portland, Ore., heads up the Water Supply Branch of the Division of Sanitary Engineering Services, Public Health Service, Washington, D. C. . . . **J. R. Bromley** is appointed for another two-year term as superintendent and chief engineer of the Wyoming Highway Department . . . **William E. Holy** leaves his post as Water Supply Engineer in San Francisco to become assistant regional engineer, Dallas regional office, U. S. Public Health Service.

• **Business**—Harland Bartholomew and Associates, city planning consultants of St. Louis, appoint **William S. Pollard,** civil engineer and highway specialist, as chief engineer . . . **S. W. Stouffer** is promoted to assistant director of construction and maintenance by Jones & Laughlin Steel Corp. . . . **Bruce A. Jacobi** becomes president of the New York firm of Baker, Smith & Co., Inc., heating and ventilating contractors.

H. M. Thomas, assistant superintendent of construction of U. S. Steel Co.'s expanded steel pipe plant at Provo, Utah, is named superintendent of the subsidiary Consolidated Western Steel Division . . . Raymond Concrete Pile Co. appoints **Richard O. Marsh, Jr.,** Pittsburgh district manager and **Clifford E. Simmons** Baltimore district manager.

• **Honors**—The National Society of Professional Engineers will present its annual award for meritorious service to **Andrey A. Potter,** dean emeritus of engineering at Purdue University for his contribution to engineering education . . . **Roy F. Larson,** Philadelphia architect, is awarded the 1955 Medal of Achievement of the Philadelphia Art Alliance for his work on the development of the city's new Independence Mall and his services as president of the Philadelphia Art Commission.

Use construction equipment?

. . . now you can

STANDARDIZE ON CUMMINS

CUMMINS *diesels give you the big plus* MORE PROFIT

CUMMINS

diesels deliver

New NRT-6 Cummins Turbodiesel *delivers 300 horsepower. This is one of three new Turbodiesels by Cummins. The others: 250 h.p. (model NT-6) and 600 h.p. (model VT-12). Turbocharging harnesses exhaust gas energy normally wasted, results in higher horsepower output without increasing engine size or displacement.*

features you need.... profits you want

1	**Exclusive PT fuel system** now standard on all Cummins Diesels. Easier to understand, simpler to service than any gasoline system or any other diesel fuel system.	Drastically reduces fuel system maintenance costs. Eliminates fuel racks, check valves, injection valves, timing adjustments.
2	**Cummins exclusive injectors,** open-type combustion chambers, and 4-cycle operation give highest on-the-job efficiency . . . and maintain it throughout operating range.	With Cummins Diesels, you can cut fuel costs from $200 to $500 or even more for every thousand hours of operation (compared with other diesel engines).
3	**Continuing research,** exacting engineering standards, and strict quality control assure product uniformity and high-quality, rugged heavy-duty design.	You get more operating hours between overhauls, less in-between maintenance and less unscheduled downtime when you use Cummins Diesels.
4	**Twenty-four** basic Cummins Diesels of 60 to 600 h.p. provide a wide selection of power. There are over 150 models—plus a wide variety of accessories—to match every individual job.	By matching power to your job you avoid the possibility of excessive maintenance and fuel costs resulting from under-powering . . . excessive initial costs inherent in over-powering.
5	**Standardization** of internal parts. Bearings, pistons, crankshafts and other parts are interchangeable for many models.	Reduced inventories and greater parts economy are made possible by this standardization. You get lower over-all maintenance costs.
6	**Nationwide** service and parts supply. Cummins Distributors carry all parts necessary to keep your engines running in top form . . . have factory-trained experts available to give immediate service.	Service and parts are available in nearly 200 locations in the United States and Canada and in over 100 export locations—help cut on-the-job delays.

Cummins Diesels are available in the leading makes of construction machinery. On the following pages are shown the makes of equipment in which you can obtain the advantages of Cummins Diesel power.

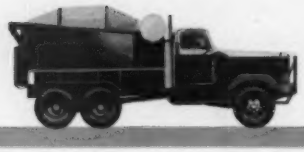
Before you place an order for new equipment, make sure you're getting lowest fuel costs, lowest maintenance costs, minimum downtime, longest life. Specify Cummins and be sure you get all these diesel advantages.

CUMMINS DIESELS

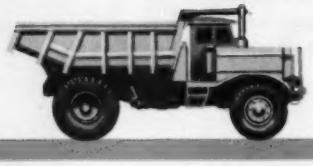
give you the big plus

CUMMINS

diesels now available

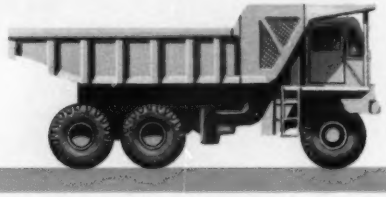


AUTOCAR ready-mix truck. One of many Autocars in which you get Cummins Diesels as standard equipment.

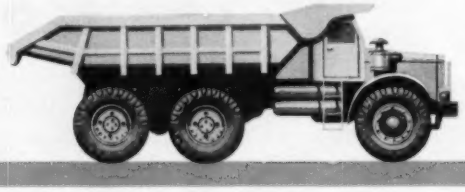


KENWORTH 24-ton end-dump truck. One of many Kenworth models in which Cummins Diesels are standard.

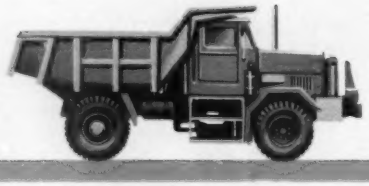
FOUR WHEEL DRIVE highway maintenance truck with snow plow. One of two FWD's available with Cummins.



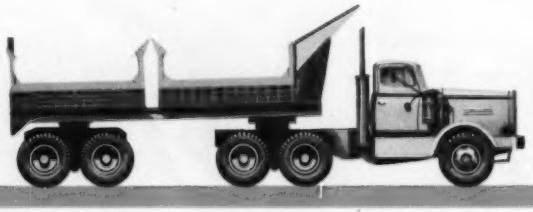
DART 55-ton end-dump. Ten other Darts available with Cummins power, including an 18-ton underground unit.



EUCLID 50-ton end-dump truck. One of many Euclid dumps and coal haulers that can be powered by Cummins.

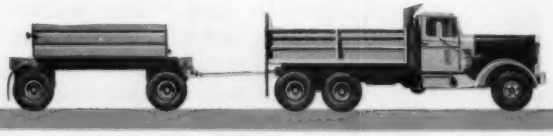


HENDRICKSON 40-ton dump truck. One of twelve Hendricksons available with Cummins Diesels.



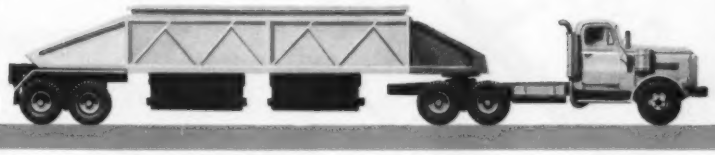
IH 35-ton quarry truck with twin side-dump. There are 17 other IH trucks you can buy equipped with Cummins.

MACK 34-ton end-dump truck. One of fifteen different Mack models available with power by Cummins.

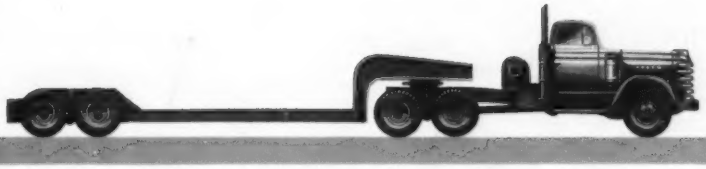


PETERBILT end-dump truck with side-dump trailer. One of 6 Peterbilt trucks in which Cummins power is standard.

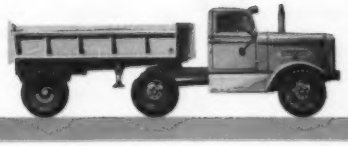
in these famous-make TRUCKS



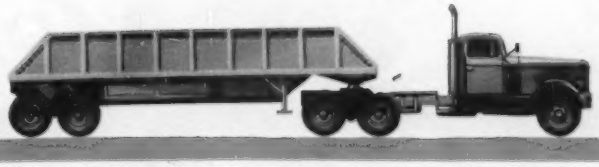
COOK 30-ton bottom-dump truck. Cummins Diesels also available in end-dump and ready-mix units.



DIAMOND T 921 series tractor with low-boy trailer. Ten Diamond T models available with Cummins Diesel engines.



OSHKOSH trailer-type highway maintenance truck. Oshkosh makes 11 other trucks available with Cummins power.



WHITE 35-ton bottom-dump gravel hauler. One of thirty-four White-built trucks available with Cummins Diesels.

For over twenty years, major contractors have picked Cummins Diesels as the top engines for heavy-duty off-highway trucks. Today, Cummins continues to be the first choice for the rough, tough haulage jobs.

Dependable day-in, day-out performance; ability to get more work done; long life; and lowest possible fuel and maintenance costs are a few of the reasons for this leadership.

In addition to heavy-duty earth haulers, Cummins Diesels are also available in smaller trucks used as dumpers or ready-mix units and in similar over-the-highway service.

When you buy new heavy-duty or medium heavy-duty construction trucks, get maximum efficiency . . . top profit. Specify Cummins.

CUMMINS DIESELS

give you the big plus

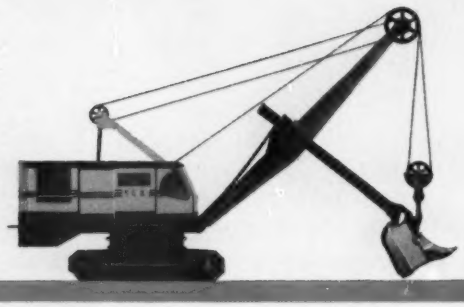
MORE PROFIT

by Cummins.

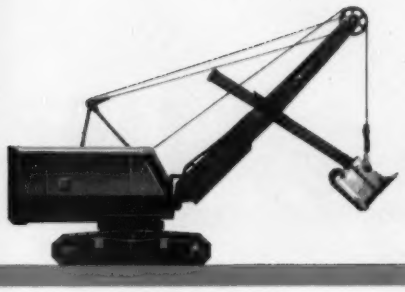
Cummins power is standard.

CUMMINS

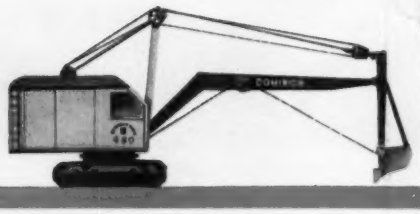
diesels now available



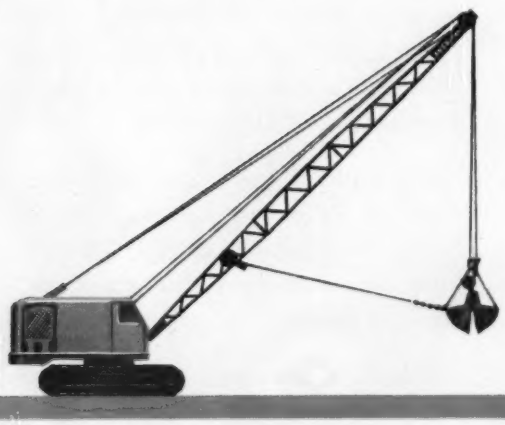
BUCYRUS-ERIE 2½-yard shovel. Cummins Diesels are also available in Bucyrus' 1½- and 4-yard shovels.



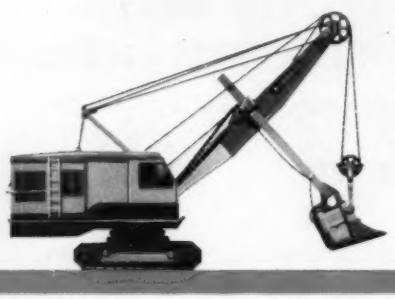
LINK-BELT SPEEDER 2½-yard shovel. Link-Belt Speeder also makes two draglines available with Cummins.



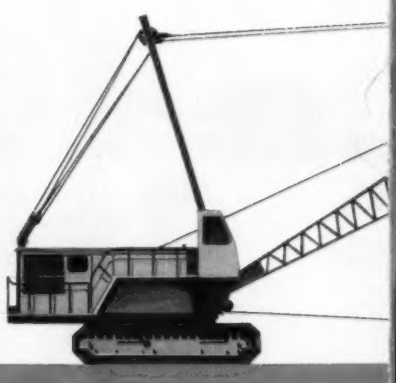
DOMINION backhoe. This unit, convertible to other front-end attachments, is available Cummins powered.



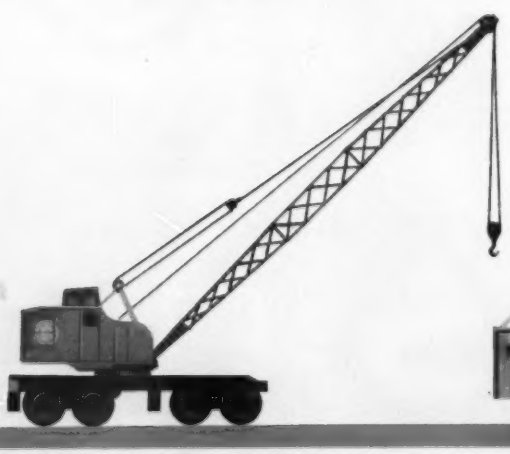
AMERICAN crawler crane. Cummins are available in the 700 series of American shovels, backhoes, and cranes.



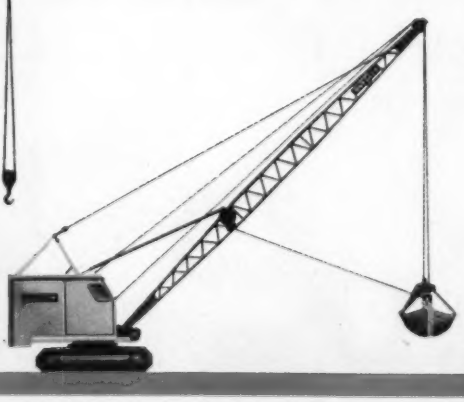
KOEHRING 2½-yard shovel. A 275 h.p. Cummins torque converter package is available in this unit.



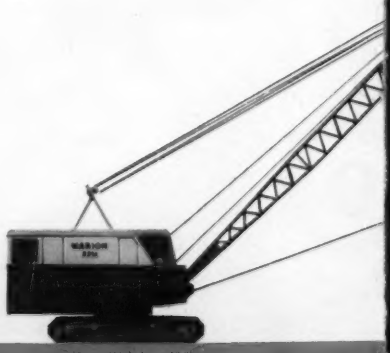
MANITOWOC 5-yard dragline. Manitowoc also powers five shovels (1- to 5-yard) and a crane with Cummins Diesels.



INDUSTRIAL BROWN-HOIST rubber-tired diesel-electric crane. Available in capacities from 25 to 60 tons.



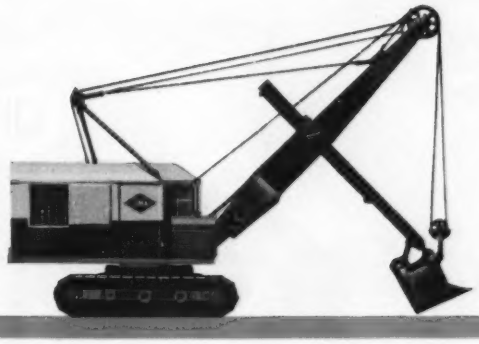
BAY CITY clamshell. Bay City's crane and 1½-yard shovel also feature Cummins Diesels as standard equipment.



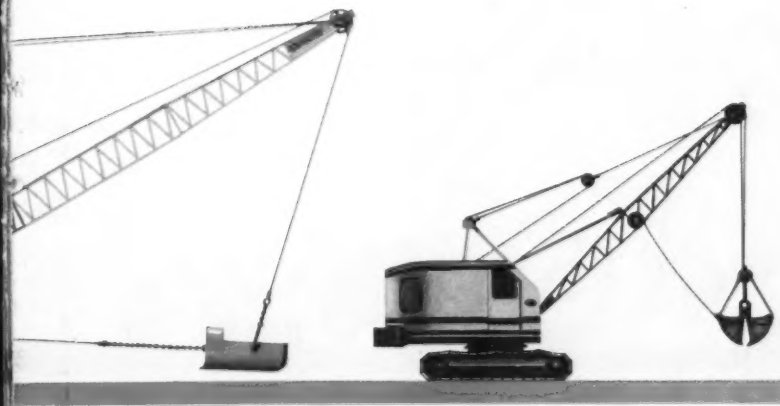
MARION dragline. One of three draglines, six shovels (1¼- to 4-yard), two cranes—available with Cummins power.

in these famous-make

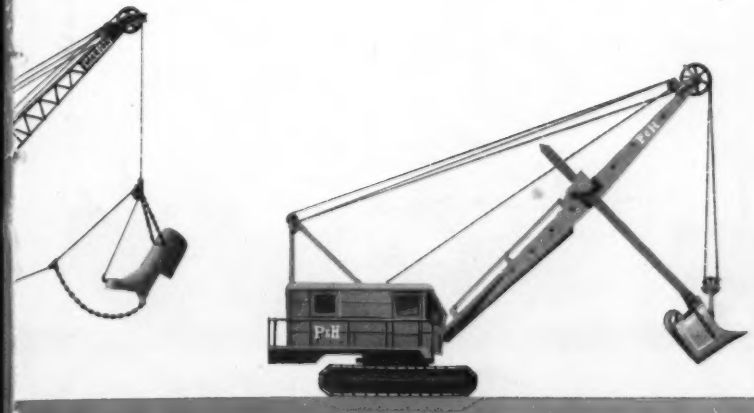
SHOVELS DRAGLINES CRANES



LIMA 2½-yard shovel. Eight different Lima models (¾- to 4-yard) can be bought equipped with Cummins Diesels.



INSLEY 1-yard clamshell. Also as shovel, hoe, dragline, crane: on crawler, truck, or self-propelled mounting.



P&H model 1055 3½-yard shovel. Also available as a dragline, crane and clamshell. All available Cummins powered.

Cummins Diesels in your shovels, draglines, or cranes assure you of longer equipment life, lower maintenance and fuel costs . . . performance you can count on. That's why leading manufacturers make their ¾- to 5½-yard shovels available with Cummins Diesels.

Cummins engines for mechanical drive shovels have been engineered to include the best torque characteristics, controls, and accessories for each model of machine.

To assure best performance and lowest operating cost, torque converter units have been specially designed by Cummins to fit individual shovel models. Shovels equipped with Cummins torque converter units maintain power without lugging, stalling, or overspeeding. On the job, they have increased production by 30% to 50%. The hydraulic coupling effect of torque converter units also reduces maintenance costs on cables and machinery by absorbing shock loads.

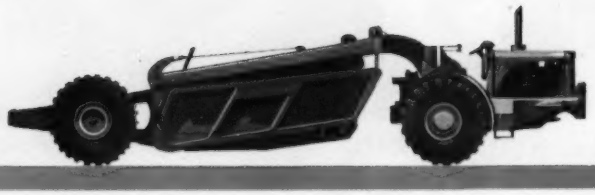
CUMMINS DIESELS

give you the big plus

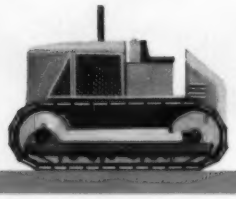
MORE PROFIT

CUMMINS

diesels now available



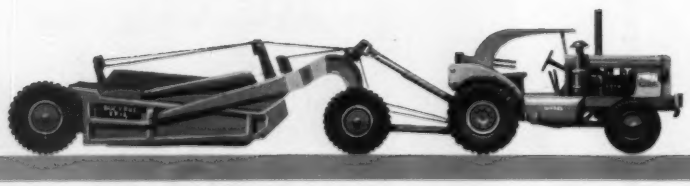
INTERNATIONAL HARVESTER model 75 Payscraper. Model 55 Payscraper is also Cummins powered.



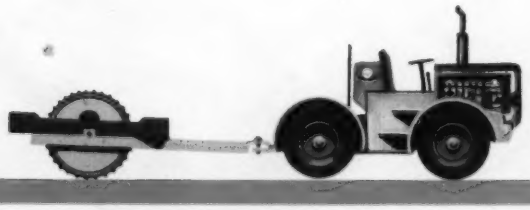
EIMCO model 105 crawler tractor. Eimco also makes a bulldozer and tractor-loader available with Cummins.

EUCLID loader. This Euclid belt-conveyor can be bought powered by a Cummins Diesel.

ADAMS motor grader. Adams division of Le Tourneau—Westinghouse offers its model 660 powered by Cummins.



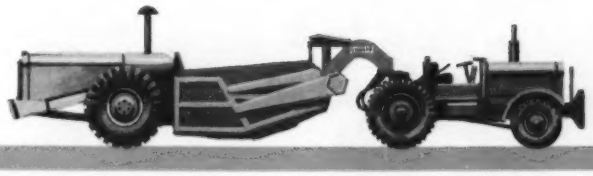
M-R-S four-wheel tractor. This is one of four M-R-S tractors available with Cummins Diesels.



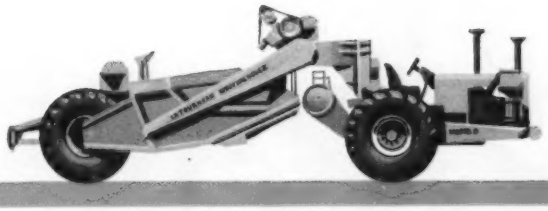
WAGNER 4-wheel drive tractor with sheepsfoot. One of two rubber-tired tractors available Cummins powered.

in these famous-make

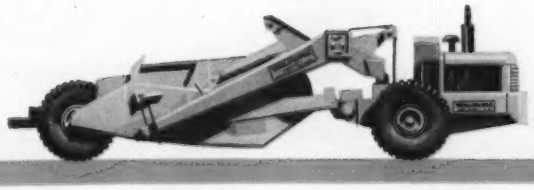
TRACTORS GRADERS SCRAPERS LOADERS



EUCLID 18-yard twin-engine scraper. One of three Euclid scrapers you can buy powered by Cummins.



LE TOURNEAU-WESTINGHOUSE "B" Tournapull. Cummins also powers the "C" and a Tournatractor.



WOOLDRIDGE 18-yard "Terra Cobra" scraper. Seven "Terra Cobra" scrapers and dumpers use Cummins power.

Cummins Diesels give you the high torque needed for 'dozing, pushing, loading . . . fast acceleration . . . sustained high speeds on the haul. On construction jobs, you will find Cummins power in the rubber-tired tractors that pull the biggest scrapers—push the biggest 'dozer blades.

A 140 h.p. Cummins Diesel now is standard in the world's most powerful motor grader. This machine does your grading and ditching jobs faster, better and more economically.

You now can get Cummins power in crawler tractors, too. Driving through a torque converter, a new 120 h.p. Cummins gives these tractors greater drawbar pull than all other tractors of their class—makes them outpull and outperform most tractors of heavier classifications.

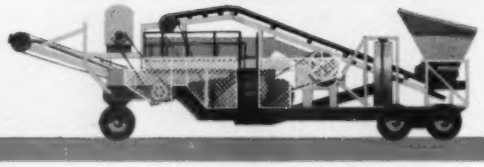
CUMMINS DIESELS

give you the big plus

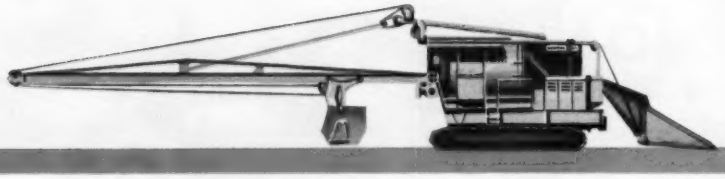
MORE PROFIT

CUMMINS

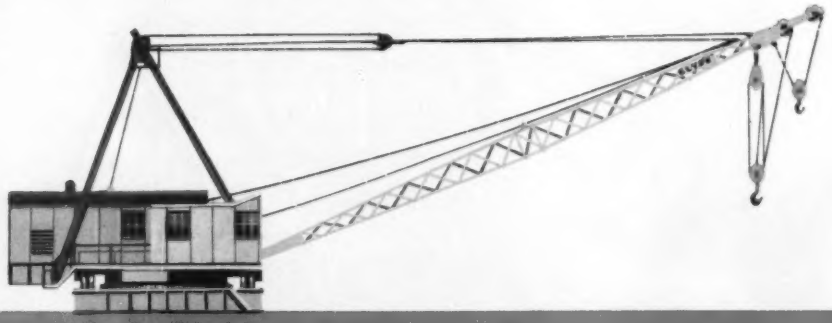
diesels now available



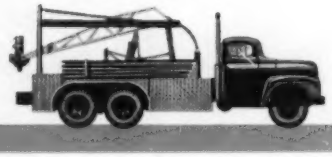
CEDARAPIDS "Commander" rock crusher and screening plant. Available powered by a Cummins 300 h.p. engine.



KOEHRING 34-E paver. It can be bought powered by a Cummins 150 h.p. Diesel.

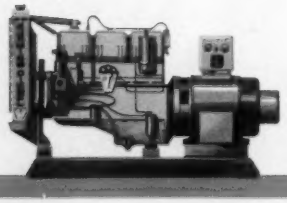


CLYDE Whirley. Four sizes, from 60,000 lbs. at 25′ radius to 166,000 lbs. at 40′ radius. All use Cummins.

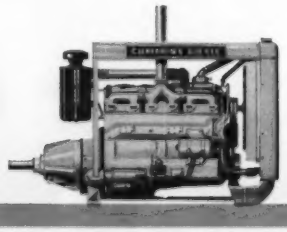


REICH rear-mount drilling rig (on IH truck). Cummins 150 h.p. engine powers both the truck and the drill.

Standardize on Cummins for generators and power units, too!



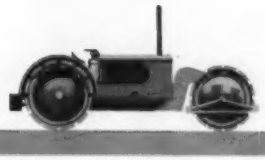
GENERATOR UNITS. Cummins makes lightweight, compact generator units—30 to 250 kw—adaptable to either portable or stationary applications. Simplicity of design minimizes installation expense. The low fuel consumption and small costs of maintaining Cummins Diesels are the reasons why power users have found that Cummins generator units give them the lowest cost per kilowatt hour.



POWER UNITS. Cummins makes a complete line of rugged, heavy-duty industrial engines—60 to 600 h.p.—adaptable to an extremely wide range of applications, both portable and stationary. These engines can be furnished as straight industrial units (fan to flywheel) . . . as complete power units with radiator cooling, hood, and clutch power take-off . . . or with a wide variety of accessories.

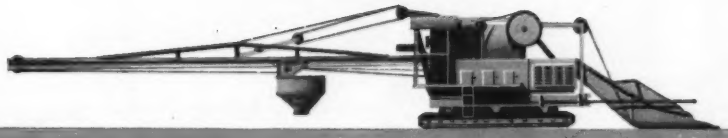
in these famous-make

CRUSHERS
HOISTS
COMPACTORS
PAVERS
DRILLS



BUFFALO - SPRINGFIELD "Kompactor." Available powered by a Cummins 125 h.p. Diesel engine.

AMERICAN HOIST. American hoists ranging from 14,000 to 35,000 lb. capacity utilize Cummins Diesel power.



WORTHINGTON-RANSOME 34-E paver. A 150 h.p. Cummins Diesel is standard in this machine.

No matter what phase of construction work you specialize in . . . no matter what type of equipment you use most . . . you can be sure of maximum efficiency, *more profit* when you standardize on Cummins Diesels. There's no surer way of increasing production . . . cutting costs.

The construction equipment shown on these pages is only a sample of the wide variety of units available with Cummins power. All incorporate the latest engineering advances to let you do more jobs faster, better, and cheaper.

For further information, contact your Cummins Distributor or your equipment dealer, or mail coupon today.

CUMMINS ENGINE COMPANY, INC.
Columbus, Indiana

I am interested in finding out more about Cummins Diesel advantages.

☐ Send me, free of charge, your directory of manufacturers offering Cummins Diesels in their equipment.

☐ I want details on repowering my present equipment. Please have your representative call.

Name_____ Position_____

Company_____

City_____ State_____

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give you the big plus

MORE PROFIT

CUMMINS

distributors serve you better, too!

EXPERT ADVICE AND ASSISTANCE. As the largest exclusive diesel sales and service organization in the U.S. and Canada, Cummins distributors are able to help you when you buy new equipment. They can also install Cummins Diesels in your present machines.

FACTORY-TYPE MAINTENANCE. No matter where your job is, you'll find a Cummins repair shop, manned by trained mechanics, nearby.

GENUINE CUMMINS REPLACEMENT PARTS. Each distributor stocks a complete line. This eliminates the need to tie up your own money in an extensive inventory.

SPECIAL JOB-SITE HELP. To serve the needs of contractors, Cummins distributors have for years set up special service and parts availability on job sites.

Contact the Cummins distributor in your area today.
Get proof that standardizing on Cummins will give the big plus . .

MORE PROFIT

CUMMINS ENGINE COMPANY, INC.

Columbus, Indiana

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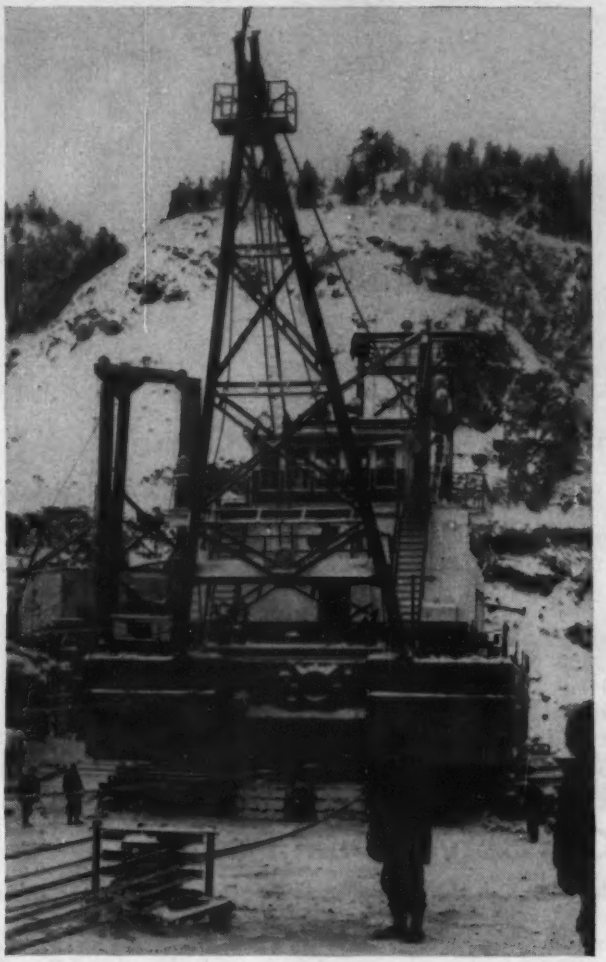
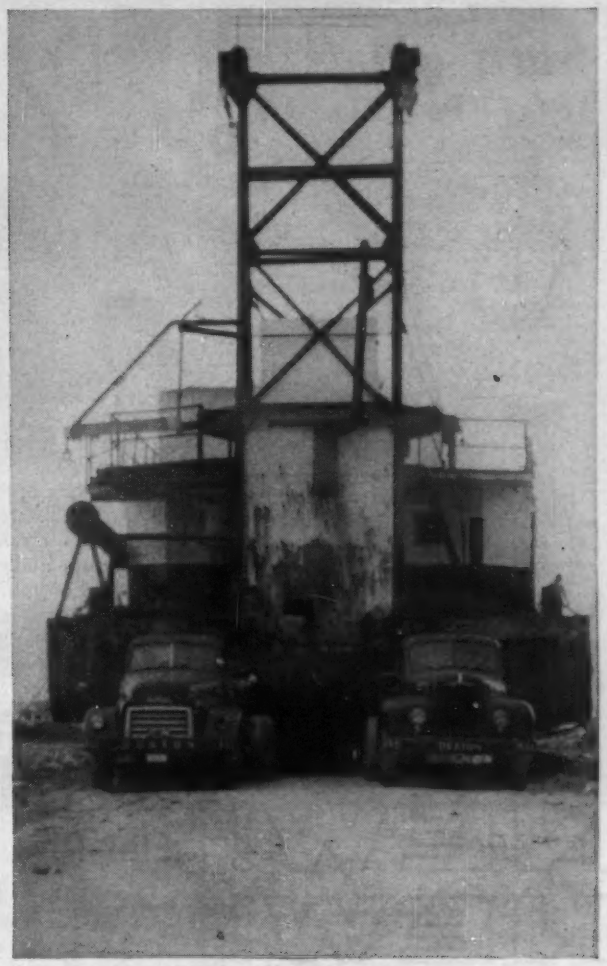
ENR-428



IN ICY ONTARIO—on crawlers



IN SUNNY FLORIDA—on wheels

Two Ways to Move a Dredge

At Steep Rock Lake in Canada, Construction Aggregates Corp. portaged two 900-ton dredges over 2 miles of rough ground on three undercarriages from crawler cranes. And near Pensacola, Fla., two smaller hydraulic dredges had a smoother 2½-mile haul on flat-bed trailers.

• **At Steep Rock,** the dredges Steep Rock and Marmion had removed 55,000,000 cu yd of overburden from one ore body and had to get on to another.

Full-scale tests first were made in which the 67-ton undercarriage of a 5-cu yd crane was loaded to 300 tons with steel slabs. Three units of this kind then made up the carriage for one dredge, two near the stern and one under the bow.

Movement to conform to haul-road variations was provided for in large pintle bearings transferring the weight of the dredge to the crawler units. Turning was taken care of by tongues on the crawler frames operated by ratchets secured to the dredge hull.

In moving up the 8 to 11% grades of a ramp to the haul road, hoisting machinery aboard the dredge was used —with lines running through blocks to dead men. Also, two tractors pushed and a truck and tractor pulled.

To put the dredge on the crawlers, it was first floated onto submerged timber blocking. Lowering the water level put the dredge on this blocking. Crawlers were put in place underneath; jacks lifted the dredge, then lowered it onto the crawlers; and crawlers were welded to the hull.

Before moving, the dredges were stripped of spuds, ladders and main pumps. The haul was accomplished in 20-deg-below-zero cold, which according to CAC's resident engineer, Charles J. Poppe, complicated things with a lot of ice to be cleared.

• **In Florida** there was no ice to hinder movement of two dredges from the Gulf Intra-Coastal Waterway to the work of pumping fill for a runway extension at Elgin Air Force Base.

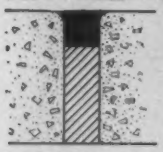
First a derrick barge lifted a 100-ton dredge onto timber cribs so that heavy duty trucks could ride underneath. Lowered onto the trucks, the dredge was hauled away—on 56 rubber tires—making up to 5 mph on paved portions of its route. Next a 220-ton dredge was floated in a basin, then left high and dry on cribs to let trucks back underneath. A total of 108 tires bulged under this load.

Smith Engineering and Construction Company, of Pensacola, is the contractor on this work, with Hendry Dredging Corporation, of Rattlesnake, Fla.

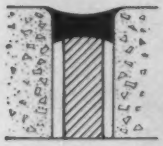
(*F&O continued on page 74*)

Servicised
PARA-PLASTIC JF JOINT SEALER

RESISTS SOLVENTS AND JET FUEL SPILLAGE



Temperatures to 180°F do not affect Para-Plastic sealing efficiency



Para-Plastic JF remains plastic, maintains bond at sub-zero temperatures

Airport runway and apron joints sealed with Para-Plastic JF — an exclusive Servicised development—will stay sealed in temperatures from sub-zero to 180°F and resist the disintegrating effects of fuel or petroleum solvent spillage. Para-Plastic JF forms a resilient, adhesive and effective plastic seal that insures maximum joint protection. Can be pumped directly from melting kettle into the joint — a fast, low cost method of application.

Write for complete details on Para-Plastic JF today.

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Here's vital information for ready reference on the new Tri-Forged steel grating and stair treads, plus latest information on Tri-Lok interlocked products. This fact-filled catalog gives you installation specifications, types of grating and stair treads available, and safe load tables. Be sure to write for your copy today.

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DRAVO CORPORATION
Pittsburgh 22, Penna.
National Distributors

Tape Eliminates Bumps and Grinds

Pressure-sensitive plastic tape is helping Robert E. McKee General Contractor, Inc. of Dallas, Tex., cut both time and expense on a major construction job.

Used most recently to seal the joints between the 4 x 8-ft plywood ceiling forms in Dallas' new 18-story Statler Hilton Hotel, the taping method eliminated the formation of concrete fins or beads that previously seeped between the joints. Subsequent grinding was, therefore, also eliminated. In addition, McKee found that the waterproof tape made greater reuse of the forms possible by preventing moisture from deteriorating the edges of the plywood. This reuse feature more than offset the tape's cost.

For the job more than 26 miles of the 5-mil thick tape were consumed—75 rolls per floor. A yellow colored tape was used because its brightness warned workers not to drag heavy objects over the sealed joints prior to pouring the concrete.

Flat Pile Cap Serves Dual Purpose

To construct the Mill Creek sewage disposal plant at Cincinnati, the contractor was confronted with the problem of erecting the foundation on an old creek bed that has been subjected to many back-up floods from the Ohio River.

Foundation pipe piles were to be driven to an approximate depth of 41 ft, but because of the marshy base and the desire to obtain the best driving results and bearing characteristics, a flat steel plate was welded onto the bottom of each pile to serve as a driving point.

An additional purpose for welding the flat cap to the bottom of the pile was to eliminate the chance of water being forced into the pile. Freezing and consequent bursting of the pile was a hazard since the early stages of the project were carried out during a below-zero cold spell.

Contractor on the job was the Penker Const. Co. of Cincinnati, Ohio.

Photo Courtesy of L. B. Foster Co.

Build Profitime . . . Cut Downtime

with Firestone NYLON Off-The-Highway Tires

THAT'S right! You increase yardage and profits and keep your downtime at a minimum with rugged Firestone Nylon Off-The-Highway Tires.

Whether it's earth moving, rock work or strip mining, Firestone can supply a rugged nylon tire specifically engineered for the job.

It costs you less to run on Firestone Nylon Tires because the treads give maximum traction and they are extra tough to resist cutting. The sidewalls are double thick to give added protection against cuts and snags. The new Firestone Safety-Tensioned Gum-Dipped* nylon cord body has four extra tread plies to insure longer tire life and more retreads. The Firestone Safety-Tensioned Gum-Dipped nylon body gives the greatest protection against impact breaks . . . flex breaks . . . heat failures . . . and water damage.

Let your Firestone Dealer or Store show you how Firestone Nylon Off-The-Highway Tires will cut your downtime and increase your profits.

*T.M. Reg. U.S. Pat. Off.

America's Future Progress Depends on Better and Safer Highways

GROUND GRIP • ROCK GRIP • TRACTION ROCK • ALL TRACTION • ALL NON SKID • RIB EXCAVATOR

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OBITUARIES

E. M. Wichert, 71, inventor of the Wichert continuous truss used on several large bridges, including the Homestead Bridge in Pittsburgh and the Susquehanna River Bridge at Havre de Grace, Md., is dead. Wichert was chief engineer of the Dravo Corporation from 1903 to 1913. Later he headed his own contracting company, which engaged in dam and river work, and the Wichert Bridge Co., which promoted use of the special truss.

C. Henry Olmsted, 81, civil engineer and director of public works for East Hartford, Conn., from 1931 to 1945, died April 8. A graduate of Lehigh University, he was elected to Connecticut's general assembly in 1905 and served as clerk of the committee on roads, rivers and bridges. City service included membership in East Hartford's school building committee, town plan commission and the flood control committee.

Alexander N. Aitken, former city engineer of Erie, Pa., died April 10. He was employed by the city for 58 years, being named city engineer in 1924 and holding that post until retirement in 1947.

Theodore L. Condron, 88, retired consulting engineer, Chicago, died April 14 in that city. He was educated at Rose Polytechnic Institute, Terre Haute, Ind., receiving a B.S. degree in 1890, an M.S. degree in 1892 and a C.E. degree in 1918. For many years his firm, Condron & Post, Chicago, was engaged in consulting work involving railroad and highway bridge design, factories, warehouses.

Marilyn B. Sheik, 57, who was in charge of building installations from Hawaii to Guam for Morrison-Knudsen in 1945, died March 29 in Honolulu. He took over the task of completing the $40-million Tripler Army Hospital for M-K in Honolulu during 1946 and 1947. He started his own business, the Sheik Co., in Hawaii in 1947.

Harry W. Long, 58, superintendent of the division of streets for Dayton, Ohio, died March 27. He was a private contractor before joining the city's service in 1943.

Walter R. Tayler, 52, district materials engineer at Grand Junction for the Colorado Highway Department, died March 12. He had been with the department since 1931.

They're drilling Limestone for NEXT-TO-NOTHING A YARD...

...with this JOY "Blastair Drill"

In a Texas limestone quarry, a Joy Model 225 "Blastair" Drill set the following performance record . . . with a drilling cost of *less than two cents a cubic yard:*

Bit Size		6¼"
Footage Per Shift		300
Labor Cost Per Shift (Driller & Helper)	$20.80	
Fuel Cost Per Shift	5.00	
Lubricating Oil Cost Per Shift	2.00	
Total Labor & Fuel Cost Per Shift		$27.80
Labor & Fuel Cost Per Foot	$ .093	
Bit Cost Per Foot	.134	
Total Labor, Fuel, Bit Cost Per Foot		.227
Cubic Yards Broken Per Foot		13
Total Drilling Costs Per Cubic Yard		.0174

Performance figures will vary, of course, with other formations. However, they show the possibilities of cutting *your* drilling costs with this outstanding Joy drill.

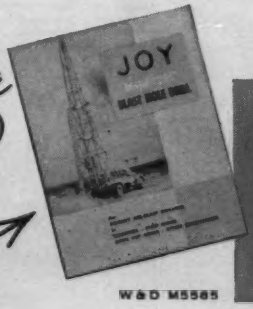
The "Blastair" is a truck-mounted, rotary, "air-blast" drill. It is a fast mover between holes and is easy to set up in drilling position. Its outstanding features include hydraulic automatic chuck, heavy-duty hoisting drum, oil-bath chain-case power unit, and rugged sectional mast. It is a real top-performance, low-maintenance machine that is ideal for the rough jobs of quarry and open-cut mine drilling.

Find out for yourself how the Joy "Blastair" can cut drilling costs on your job as it did this. Write today for Bulletin RM-709 to ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

GASOLINE OR DIESEL DRIVE • 6¼" MAX. DIA. HOLE
20' FEED • DRAG OR ROTARY-CONE TYPE BITS

Consult a Joy Engineer

OR WRITE FOR BULLETIN RM-709



W&D M5585

JOY

PIONEER AND WORLD'S LARGEST MANUFACTURER OF ROTARY BLAST HOLE DRILLS

EASY, PROVEN WAY
to PERMANENTLY BOND
CONCRETE TO CONCRETE
WELD-CRETE®

Weld-Crete is the amazing liquid bonding agent which enables you to *permanently* bond new concrete *directly* to old concrete . . . or to most any other structurally sound surface . . . *without need for costly, time-consuming chipping, drilling, roughening, acid washing or scarifying of concrete base.*

Weld-Crete has equal bonding permanence all climates, all surfaces, all sorts of conditions. When used with quick setting cement topping you can lay new floors, ramps, driveways, etc. one day and run heavy truck traffic over them the next. Get facts from your building materials supply dealer or write Larsen Products Corp., Box 5756-I, Bethesda, Md.

TYPICAL WELD-CRETE APPLICATION

National Brick Co., Terra Cotta, D.C.

Here Weld-Crete was used to bond new ¾" concrete topping directly to old, badly chipped and spalled floor slab which had been subjected to ceaseless heavy truck traffic. Plant shut-down time eliminated as Weld-Crete enabled National's own mechanics to do job over week end.

CONCRETE JOIST CONSTRUCTION

RENTAL and ERECTION SERVICE

Member of CONCRETE REINFORCING STEEL INSTITUTE CRSI founded 1924

Gateway PANS

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- CHICAGO
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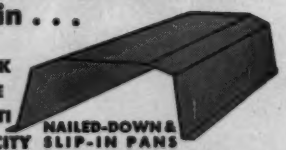
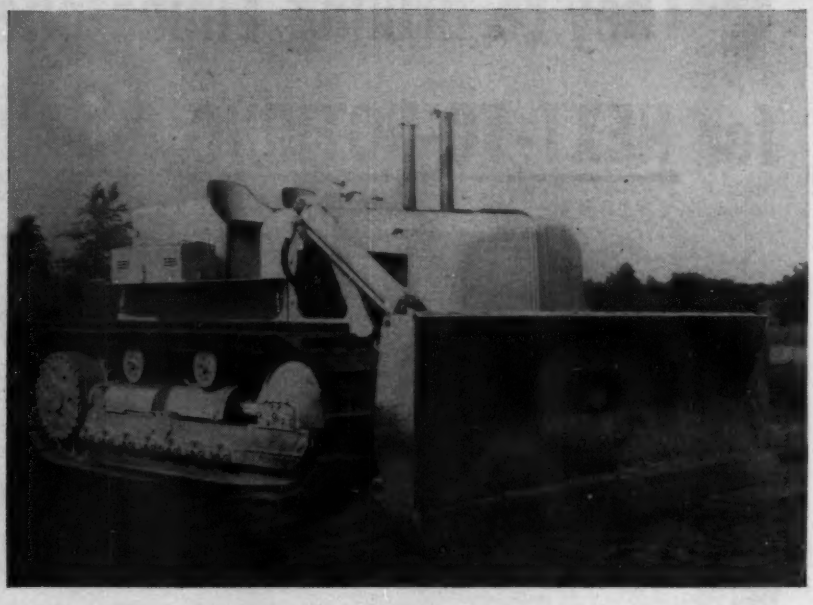


NAILED-DOWN & SLIP-IN PANS

Ask for Catalog No. 3100

GATEWAY ERECTORS, INC.
3233 W. Grand Ave., Chicago 51, Illinois

NEW PRODUCTS



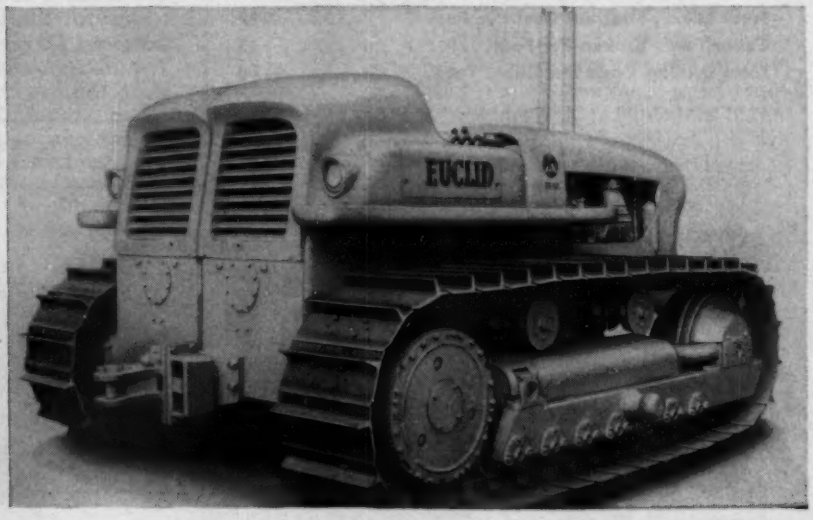
Euclid's Experimental TC-12 Tractor . . .

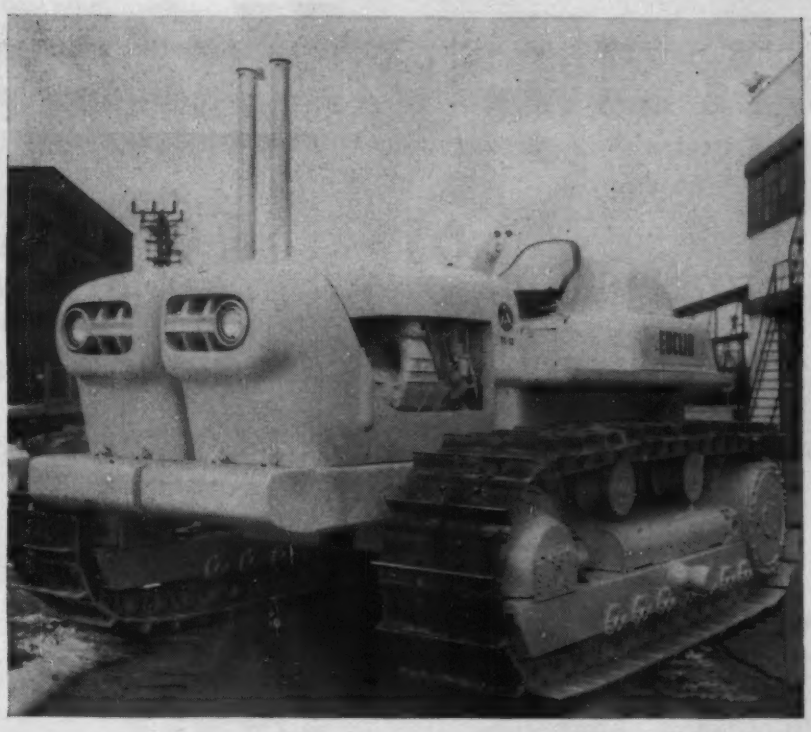
What happens when an automobile manufacturer moves into the earth-moving equipment field? A look at Euclid's TC-12—now in limited production—will give you the answer, but fast. The nameplate on the new crawler may say Euclid, but General Motors screams from every curving contour.

Nearly two years ago when GM acquired Euclid (ENR Aug. 13, 1953, p. 92), the new concept in tractor design was begun. Work on it progressed at such a rapid pace that working models were ready for test and exhibition a year later.

At a showing limited to the press and Euclid distributors (ENR Sept. 30, 1954), the company unveiled a 53,000-lb, dual-dieseled giant that could jump from top speed forward to top speed reverse with the flick of a finger. Of a split design, the tractor was essentially two one-tracked units combined by a 7-in. dia transverse shaft. Each track was powered by its own engine through its own torque converter and transmission. The purpose of the transverse shaft was to permit each section to maintain better contact and therefore better traction over uneven ground.

The basic concept of a twin-engined, split-design crawler has been retained





In Production With a Modern New Look

in the production model but outward appearance has been remarkably altered. From the clean lines of the engine cowls to the hooded rear lights, the TC-12 is really a classy chassis. Even the paint has been changed from the dull Euclid green to a bright new chartreuse.

But before you get the idea that this is just another glamour gal, take a look at its performance. The two 194-hp diesels drive the tractor through three speed ranges: at 1.5 mph in low, 3.0 in intermediate and 8.3 mph in high. Drawbar pull with normal bulldozer attachments is rated at 69,750 lb.

Since each track is independently powered, the tractor may be "spin-turned" by keeping one track going forward and throwing the other in reverse. Conventional brake and clutch turns may also be made, of course.

Maintaining proper track tension is automatic on the TC-12. A hydraulic jack maintains uniform pressure on the front idler and an accumulator absorbs recoil should a large stone or other object get between the track and sprocket.

Track and carrier rollers, seven on each side, have 1,000-hr lubrication. Barrel-type bearings have wide spacing and self-adjusting face type seals. There are 39 shoes on each track providing ground contact—with 26-in. shoes—of 6,000 sq. in.

Track gauge is 110 in., overall width is 136 in. and overall height is 194 in. Drawbar height is 23 in. and ground clearance is 20 in. Operating weight, bare, is 58,000 lb—5,000 lb greater than the experimental units. EUCLID DIV., GENERAL MOTORS CORP., CLEVELAND 17, OHIO.

Shell Introduces "Spot" Check on Oil Efficiency

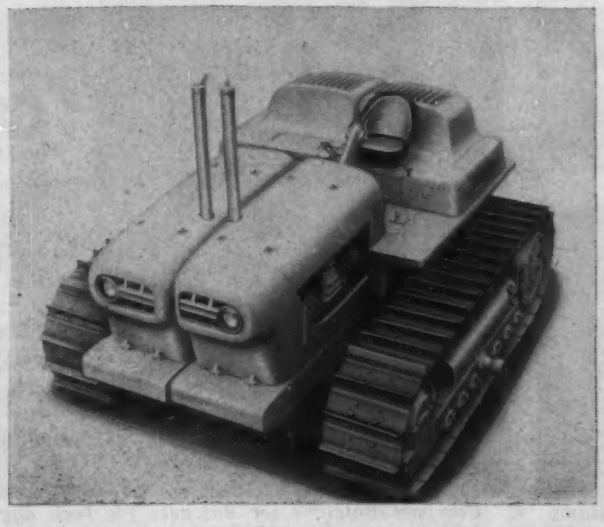
Quick field tests for immediate evaluation of used lubricating oils have been developed by Shell Oil Co. Called the ADC Oilprint Analysis, the series of chromatic spot tests, when viewed by trained technicians, reveal the degree of dispersancy, contamination and basicity of engine lubricants.

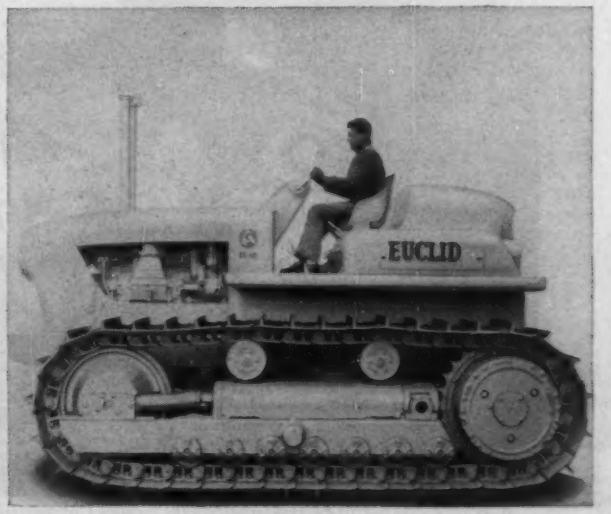
To perform the test, a technician puts two drops of oil from an engine's crankcase on a sheet of filter paper and adds a drop of color solution to one of the resulting patterns. Within minutes, the spread of each drop—identifying "fingerprints" of the oil being tested—is ready for analysis. If negative in any aspect, the test may indicate need for a prompt oil change, thus avoiding the possibility of costly engine repairs.

It is emphasized that the analyses must be conducted by trained personnel and for this reason, the company will limit its availability to maintenance supervisors of large fleets.

Although the prime function of the ADC Oilprint Analysis Service is to ascertain proper oil-change intervals for individual engines, the tests reportedly have cut the cost of engine maintenance by disclosing mechanical defects before they caused engine failure. SHELL OIL CO., 50 W. 50TH ST., NEW YORK 20, N. Y.

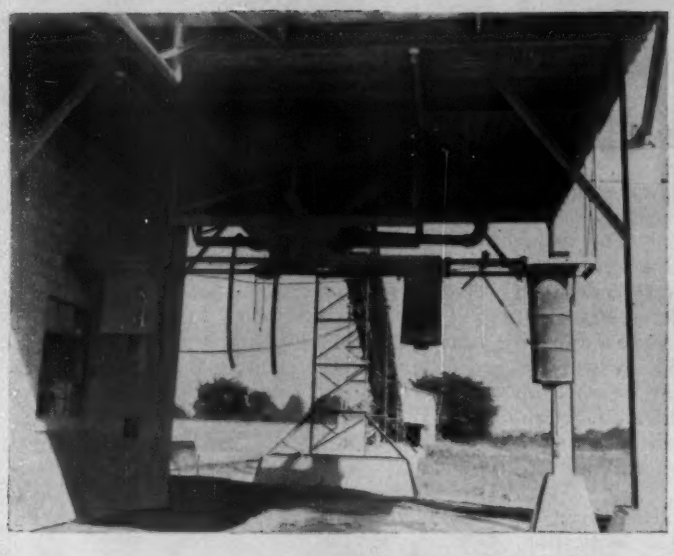
(*New Products continued on page 82*)





Why Batch Away YOUR

Midwest Supply Company finds New Heltzel Automatic Cement Plant with Batchmaster Batcher has perfect record in dispensing 40,000 barrels –

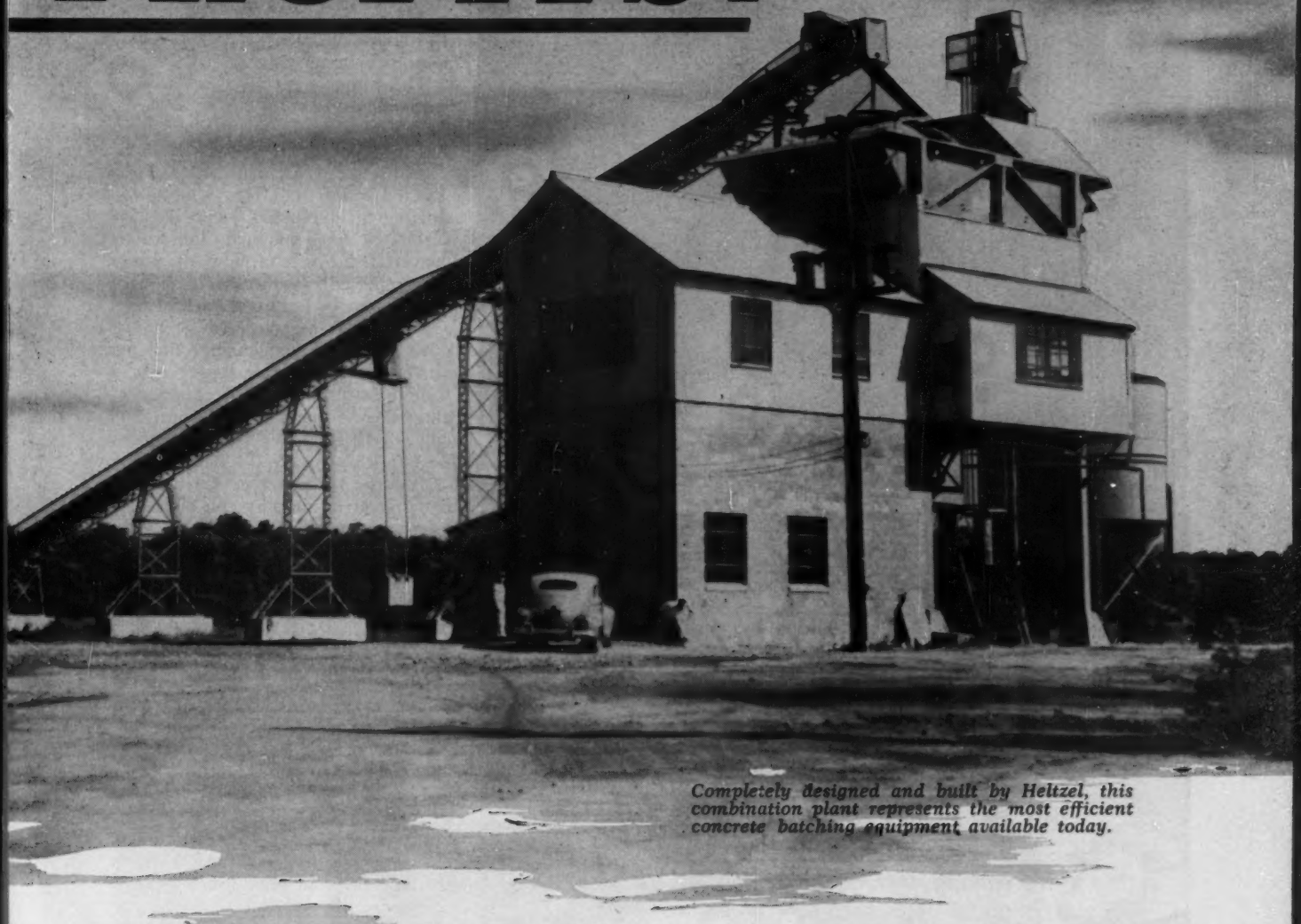


Bucket loading hoppers on a rolling track for three separate discharging heights, including a dry batch collecting hopper for dispensing to batch boxes. Water is introduced simultaneously.

A single operator controls entire operation of filling plant, measuring and dispensing. He can weigh all materials, including water and discharge 5½ yards of concrete in 30 seconds.

Compact Batchmaster Batchers for both aggregate and cement. Cement Batcher is sealed. Aggregate Batcher features air-operated clamshell gates. Sealed weighing apparatus has automatic recording device.

PROFITS?



Completely designed and built by Heltzel, this combination plant represents the most efficient concrete batching equipment available today.

Roadbuilder or blockmaker—transit or central mix if you use cement and/or aggregate batching plants you know the value of a fast, accurate operation. That's why this story may interest you—for it's another report of how Heltzel superior batching equipment saved the profits for another plant operator.

Boardman Supply Co., Youngstown, O., checked the record after batching some 44,000 bbls. of cement through their Heltzel Combination Plant. The record: a 15 bbl. plus—the result the average cement producers normally provide in their shipments. What makes this story even more amazing is the fact that Boardman was batching small amounts (600 lb. average) on a 5000 lb. scale.

As for speed, Boardman can weigh out *5½ yards of dry material, and the necessary water in 14 seconds—discharge it in 17 seconds.* As for handling savings, they can *put together all materials necessary for batching a yard of concrete for less than four and one-half cents.*

Heltzel designed and built the entire operation to give Boardman the most efficient set-up possible. It consists of four 65-ton aggregate storage bins at grade level. The bins are equipped with interlocked air-operated gates to prevent the mingling of materials. The bin discharges the aggregates onto a Heltzel Belt Feeder which carries them to a Heltzel Inclined Conveyer, which transports them to the top of the plant. Here they are distributed by a motorized turnhead into the proper compartment. Bin signals indicate aggregate level in the plant.

A cement hopper feeds into a Heltzel Screw Conveyer. A Heltzel Elevator carries the cement to the top of the plant where it is discharged either into the sealed cement compartment or into a recirculator. Cement is weighed and discharged through a sealed Heltzel Batchmaster. *All operations are automatically controlled from a single station that requires but one operator.*

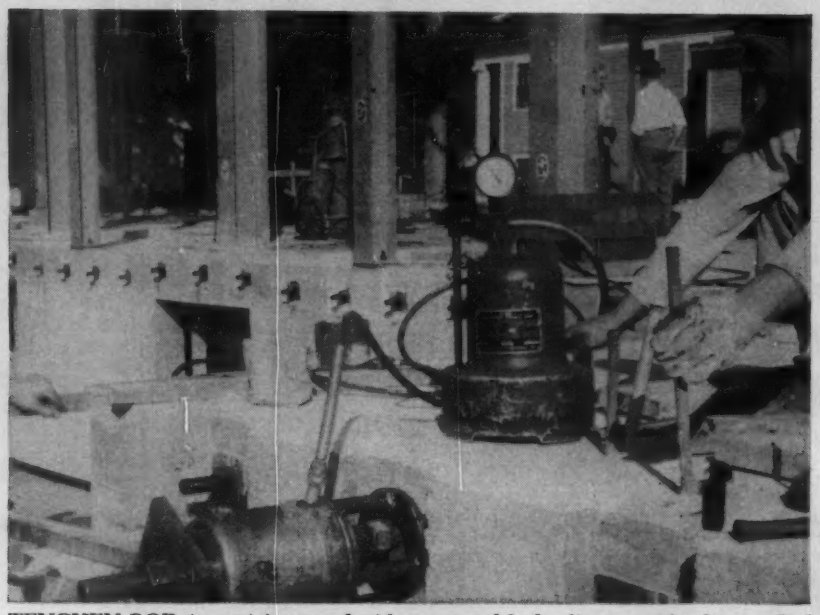
This story can be duplicated whether your needs are for a single or multiple material plant, stationary or portable, for yard or highway use. Why not make sure you have the fastest, most accurate equipment possible. Don't chance losing time and profits with inferior equipment. *Specify Batchmaster Plants by Heltzel.*

HELTZEL
Batchmaster
BATCHING PLANTS

15000 THOMAS ROAD

THE HELTZEL STEEL FORM & IRON CO., WARREN, O.

GRID CEILING has a 44-ft clear span. Ribs and tensioning bars are 2 ft o.c.



TENCHEN ROD (center) is stressed with pump and hydraulic ram with adapter. Rod at right has not yet been stressed while those at left show completed stressing.

Prestressed Grid Slab Spans 44 Feet

St. Stanislaus Church in Bristol, Conn., features one of the longest prestressed slab spans in the U. S. Of unbonded, postensioned construction, it uses high tensile heat treated steel rods with upset threaded ends.

The rods, tradenamed Tenchen, have a minimum ultimate strength of 180,000 psi and have upset ends which are rated at least 17.5% stronger than the bar itself. Upsets are provided with standard threads and high tensile heat treated nuts.

The prestressing operation consists of pulling the bars up to the proper stress and elongation, running the nut up against the bearing plate and releasing.

On the Bristol project, the clear span between column lines is 44 ft and was designed for 60 psf live load and 35 psf for a superimposed dead load. Of a grid design, one 1⅛-in. Tenchen bar was required for each of the ribs which are 2 ft o.c. TENCHEN CORP., 101 W. DEDHAM ST., BOSTON.

Road Rollers Get Torque Converters for Smoothness

A new series of 8 to 12 and 10 to 14-ton tandem rollers is equipped with torque converter drive.

The torque converter prevents engine lugging during heavy starts or sudden load increases, and shock-loads and torsional variations are absorbed.

Steady speeds are maintained at any selected speed from 1 to 5 mph, and shifting is eliminated. Through the cushioned drive of fluid, the torque converter provides a flow of power that reportedly reduces roll slippage and the shocks and surges of reversing.

The rollers are powered by heavy-duty, industrial-type engines that are said to develop ample torque over a wide operating range to accommodate all grade and material conditions. The engine compartment is enclosed for dust-tight operation.

The control panel of the tandems is designed to simplify the operator's job and make it possible for him to be more alert to precise compaction requirements. BUFFALO-SPRINGFIELD ROLLER CO., SPRINGFIELD, OHIO.

Caterpillar Diesel Engine Has Number of Improvements

The D339, a 125-hp, 1,200 rpm, 4-cyl, valve-in-head diesel engine, has been introduced in the Caterpillar line.

This unit, a 5¾-in. bore and 8-in. stroke engine, replaces the discontinued D8800 in the line and offers 25% more horsepower and operates at 200 more rpm than the D8800.

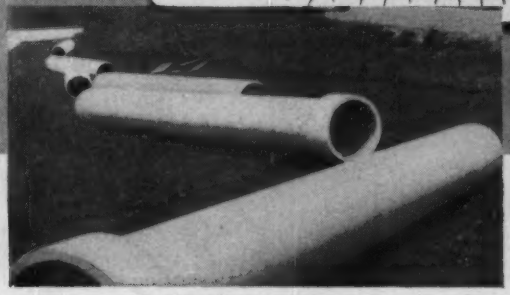
One of the new features on the D339 is an engine balancer that reportedly permits the four-cylinder engine to operate at 1,200 rpm with the same degree of smoothness as a six-cylinder design. Two off-set weights rotate at twice engine speed and are so timed that they eliminate unbalanced forces inherent in all four-cylinder engines.

The engine is offered with a choice of three different types of starting systems—air, direct electric and gasoline engine. Electric starting for the gasoline starting engine is also available.

Most of the oil lines have been placed inside the block, simplifying removal of the head and eliminating other service problems connected with exterior oil lines. This also gives the engine a neater appearance.

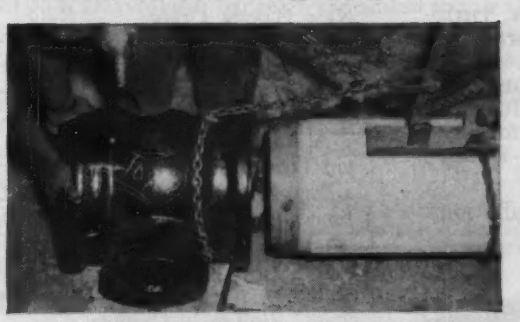
A new design of oil pump is introduced with this engine. Driven from the balancer drive, this pump is the pressure bypass type pump instead of

When a contractor says...
Installation time cut beyond all expectations!*
You can be sure that he did it with Transite® Pressure Pipe and the NEW Ring-Tite® Coupling



Easy handling, fast assembly

Installation follows digger closely



Ring-Tite Fittings, too—You can join pipe directly to fittings, valves and hydrants embodying the Ring-Tite design . . . no special tools needed, no poured joints

You, too, can complete your water-line jobs ahead of schedule and at lower installed cost. Transite Pressure Pipe with the new Ring-Tite Coupling gives you easier handling, simplified and speedier assembly, protects your job with a positive joint seal. Installation can go forward under adverse terrain and weather conditions.

With the Ring-Tite Coupling, installation costs are less—assembly follows the digger closely. The special coupling design permits quick, easy alignment. To assemble, rubber rings are simply popped into grooves. Then lubricated pipe-ends slide in under the rings easily, smoothly, and surely.

Pipe-ends stop positively and are positioned accurately—with ends automatically separated within the coupling. This gives the line flexibility to withstand shock and vibration, relieves line stresses, permits conformance to curves.

Transite Pressure Pipe and the Ring-Tite Coupling are made of asbestos-cement. Strong and durable, they cannot rust; are highly resistant to corrosion. Engineers and water works officials, too, reap the benefits not only of Transite's installed economies but also its assurance of operating economies year after year. For further information write Johns-Manville, Box 60, N.Y. 16, N.Y.

*Excerpt from actual field report: "Exceeded by far the installation speed anticipated under job conditions."

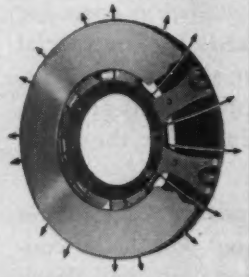
Johns-Manville TRANSITE PRESSURE PIPE
WITH NEW RING-TITE COUPLING

an ACCO product

Tru-Stop Brakes Used on Construction Equipment

• Emergency Brakes for Trucks, Motorized Equipment
• Cable Drum Brakes for Cranes, Shovels...

TRU-STOP disc type brakes have long been the outstanding choice for emergency brakes on heavy duty trucks and tractors. Their outstanding advantages are now causing them to be used to brake cable drums on cranes, shovels and other construction equipment.



Longer Lining Life
• The terrific heat generated in braking cuts lining life. TRU-STOPS quickly dissipate this heat. Most of the disc is exposed to the air even during braking. And a cooling jet of air circulates through the disc, prolongs lining life.

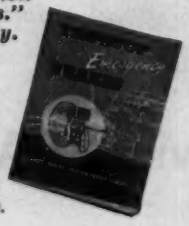
Real Emergency Brakes. On motorized equipment TRU-STOPS *are real emergency brakes—not just parking brakes.* They serve as auxiliary brakes on long down-grades and can bring the vehicle to a quick stop if service brakes suddenly fail. They prevent accidents by insuring quick positive stops in emergency situations.

Positive Parking Brakes. TRU-STOPS hold safely on steep grades—prevent "parking brake" accidents.

Lower Maintenance Requirements. TRU-STOP design simplifies adjustment or relining, decreases maintenance frequency. In truck or bus applications TRU-STOPS are normally mounted on the drive shaft. Relining or adjustment is a simple job for any mechanic with ordinary tools. It is not necessary to drop the drive shaft.

Specify TRU-STOPS for factory installation on your piece of equipment.

You will find a great deal of useful information in the booklet, "TRU-STOP Emergency Brakes." Better send for a copy today.



ACCO

Automotive and Aircraft Division
AMERICAN CHAIN & CABLE

601 Stephenson Bldg., Detroit 2
2216 South Garfield Ave., Los Angeles 22 • Bridgeport 2, Conn.

the controlled inlet version. Because of the elimination of the external oil lines, a new type of oil filter base adapter was designed. A larger oil manifold has been put on this engine to reduce restriction from the oil filter base into this manifold.

There are innovations in the fuel system too. These include a new injection pump, injection lines and capsule-type valves. Further, low-cost impregnated paper filter elements have been introduced in this engine.

A high capacity water pump and larger cylinder block water passages also have been added.

The D339 standard industrial engine has a governor designed to give 10% speed regulation between no load and full load throughout the entire speed range of the engine. CATERPILLAR TRACTOR CO., PEORIA.

3,500-Watt Generator Uses Aluminum for Light Weight

A portable 3,500-w generator is said to be one-third lighter and smaller than any model now available in its capacity.

Named the Hamco 350-D, the unit is rated at 115/230 v ac, 60 cycles and will take a starting load of 5000 w. Total weight is 210 lbs.

Ac and dc circuits filter through a condenser to minimize interference, eliminate sparking of brushes and to prolong brush and commutator life. The end bells of the generator are of aluminum alloy and the unit is mounted on aluminum channels.

The 350-D has been designed for portability as well as for rapid repair; brush changes may be made in less than 10 minutes. It has a double V-belt drive, shielded ignition system and drip proof generator. The engine is shock mounted. HAMDEN MACHINE PRODUCTS, INC., 44 KENDALL ST., NEW HAVEN, CONN.

Plastic Instrument Has a Number of Drafting Uses

A drawing instrument called the Alvin Triangle-Draft Meter functions as: a large 10-in. 45/90-deg triangle; combined 30 and 60-deg angles; a 10-in. graduated protractor; a half scale in 32nds; a full scale in 16ths; a lettering guide; circle template with 33 circle guides from $\frac{3}{32}$ to $1\frac{1}{2}$ in.

The instrument is made of acrylic vinyl plastic, .075 in. thick. It is said to be rigid, durable, extremely ductile and shatter-proof, and its laminated graduations are sharp and clear and will never wear off. Price is $4.75 each. ALVIN & CO., WINDSOR, CONN.

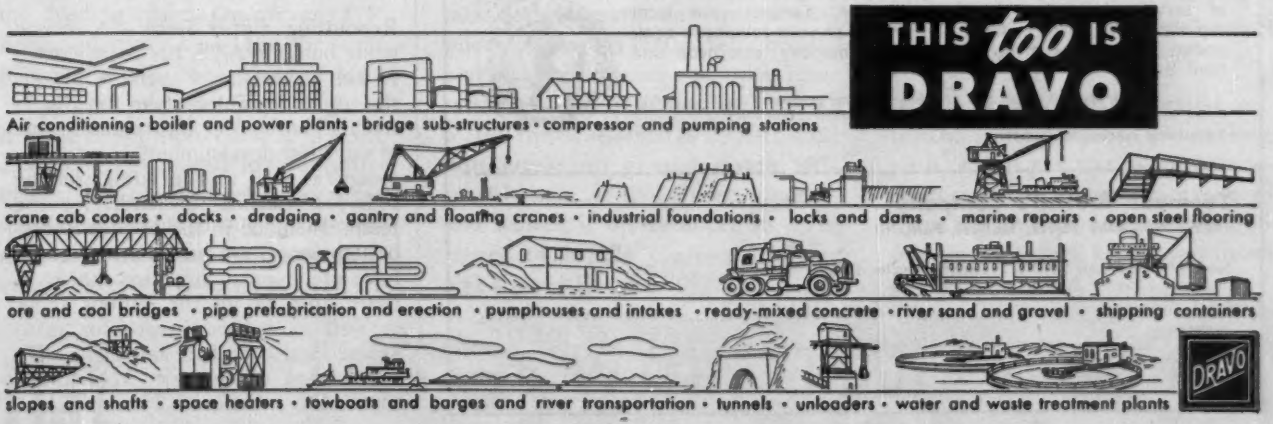
SPECIAL BARGE DESIGN PAYS OFF IN HAULAGE SAVINGS

Chesapeake Corporation of Virginia hauls pulpwood by barge from its pine forest lands in the Chesapeake Bay area to its West Point, Virginia, papermill. For years, converted ships were used for this purpose. These vessels required lots of maintenance, were difficult to unload and had to be cleaned out by hand.

To improve its handling of pulpwood, the company overhauled its entire system of transportation, unloading and processing. As a part of this program, two 190-ft Dravo-built barges were added to the fleet. These barges were developed through Dravo's "Round-Table" planning method which combines operating experience with engineering and construction knowledge to produce the best barges for the job.

The design of the new Dravo barges paid dividends through faster unloading, mechanical clean-up, easier navigation in both shallow and deep water and low maintenance. These factors have helped speed up over-all operations and increase efficiency.

Dravo has been serving business and industry in a variety of engineering, construction and manufacturing activities for more than 60 years. Throughout this period, customer satisfaction has been an essential aim in every transaction. For more information, write DRAVO CORPORATION, PITTSBURGH 25, PENNA.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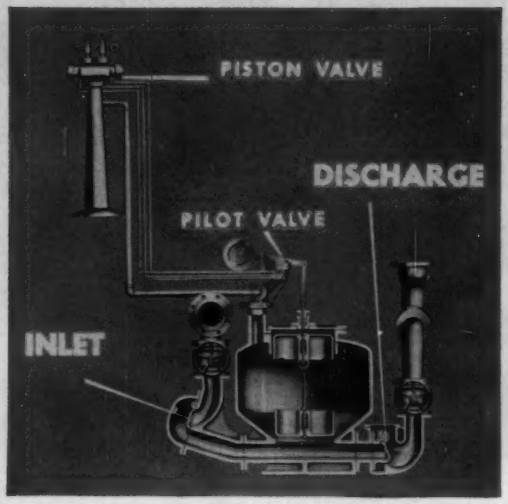
Air conditioning • boiler and power plants • bridge sub-structures • compressor and pumping stations
crane cab coolers • docks • dredging • gantry and floating cranes • industrial foundations • locks and dams • marine repairs • open steel flooring
ore and coal bridges • pipe prefabrication and erection • pumphouses and intakes • ready-mixed concrete • river sand and gravel • shipping containers
slopes and shafts • space heaters • towboats and barges and river transportation • tunnels • unloaders • water and waste treatment plants
DRAVO

We couldn't buy valves

that would stand up in the service required of the

SHONE®

Pneumatic Sewage Ejector



so we build these valves ourselves!

SHONE valves—one of the reasons for SHONE Ejector performance and dependability—are built in Yeomans plant. Yeomans' experience has taught them where the vital areas are in a pneumatic ejector, and the years have taught them how to make these parts so they will stand the abuse required by sewage and waste handling pumps.

Pilot valve and piston valve are designed to work together. The pilot valve actuates the piston valve that admits compressed air to the receiver and pushes liquid waste out and up through the discharge line. Inlet and discharge check valves pass solids up to 4-inches in the smallest unit and rectangular water passages give greater flow area than the pipes with which they are connected. Reverse bend of inlet valve assures closing as solids drop clear. Solid bronze flaps and hinges can take the pounding of operating twice a minute year after year.

Learn more about this amazing pump that gives endless years of service without repairs or attention. Contact your local representative listed in the Yellow Pages of your telephone book under "Pumps" or attach coupon to company letterhead and mail direct.

For more data on this or other Yeomans products, see Sweets Architectural and Industrial Construction Files

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Yeomans Brothers Company
1999-1 No. Ruby Street, Melrose Park, Ill.

Send by return mail SHONE Pneumatic Ejector Bulletin 4005.

Name ..... Company .....

Address .....

City ..... Zone ..... State .....

PUBLICATIONS

Product catalog – A 16-page catalog contains the information on the line of Haas automatic pressure tanks, frost-proof yard hydrants, and frost-proof water closets. The products are shown with illustrations and roughing measurements and variations to fit other purposes. List prices are shown in the catalog and a plumbers' net price sheet is found into the catalog for reference and convenience in ordering. Catalog 55. — THE PHILIP HAAS CO., DAYTON 2, OHIO.

Residential windows – Ten points to consider in choosing windows for a home are presented in a new circular "Selecting Windows." Discussed are each type from the standpoints of hardware, ventilation, view, weather tightness, maintenance and ease in washing. The publication is one of a series resulting from a study of windows under a research grant by the Lumber Dealers Research Council. Price 10 cents.—SMALL HOMES COUNCIL, UNIVERSITY OF ILLINOIS, URBANA, ILL.

Clay products – The new Structural Clay Products Catalog features over 350 standard modular shapes and sizes of unglazed brick and tile. All units shown are in conformance with modular measure, the dimensioning system designed to cut down waste in construction and detailing.—CLAY PRODUCTS ASSN. OF THE SOUTHWEST, PERRY-BROOKS BLDG., AUSTIN, TEX.

Lighting standards–A new catalog on the line of weldforged street lighting standards, mast arms and brackets includes specifications and working drawings. The booklet also includes sections on traffic signal standards, overhead wiring, possible modifications of existing standards, and also pull-top arrangement. — KERRIGAN IRON WORKS, INC., NASHVILLE, TENN.

Repointing dipper teeth – A revised guide book, WA-77, has been written to aid power shovel users in picking the right repointer style for dipper teeth. The booklet incorporates some of the latest developments in repointer design as well as the latest welding rods for attaching or hardfacing the teeth. Included in the book is a step-by-step procedure on how to successfully use points. Sizes are shown in chart form of all the various styles as well as suggested uses for manganese steel bars, flats and plate.—ED WEGERSON, AMERICAN MANGANESE STEEL DIV., CHICAGO HEIGHTS, ILL.

2 seasons in SAND cost only $298 for tire repairs

Track costs would be prohibitive, says owner

F. S. WARD Company, Clarkston, Michigan, use this high-speed rubber-tired Tournatractor to handle all tractor jobs at their sand and gravel pit near Pontiac.

Delivers about 200 yds. hourly

The tractor's chief assignment is dozing in sand to dragline for loading feeding plant. On typical 175′ dozing distance, the 186 hp unit moves 4 to 4½ bank yards of sand and gravel per pass. Push forward is made at 3½ mph. Back-up is made at 8 mph. No time is lost for shifting . . . flick of selector lever changes speeds instantly through constant-mesh transmission and torque converter. Average cycle takes only 1.1 minutes. Unit delivers 45 loads (approximately 180 to 200 bank yards) per 50-minute hour.

Strips land, handles clean-up

Easily meeting normal feeding requirements to and from the dragline, Tournatractor uses its 19 mph speed on rubber to run back and forth to handle clean-up at the shovel and around entire pit area. It also maintains several gravel and sand stockpiles . . . stumps trees, clears brush, and strips overburden to open new sections of pit. In winter, with a 2′ x 6′ steel ripper attached to its A-frame, unit breaks up ground frozen 18″ to 20″ deep. At times, both summer and winter, it drives under its own power to handle contract jobs in and around Detroit.

Outworks crawlers

"I am well satisfied with the work our Tournatractor has done," reports Owner Fred Ward. "Not only is it easier to maintain than other rigs, but maintenance costs have been very low. Tires, for example, have cost us only $298 since we bought the Tournatractor in August, 1952. This sum includes all repairs, plus one new tube. Other original tubes and tires still are good. This tire cost is much lower than track costs would be in this abrasive material."

If *your* work involves abrasive materials, scattered jobs, and a long push, it will pay you to try Tournatractor. Let us demonstrate one of these big 19 mph rubber-tired tractors on your work before you invest in another set of tracks.

Tournatractor—Trademark T-592-S-b

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—BUILDINGS

▲ **Mass., Boston**—CLASSROOM and LABORATORY—BA 5/5—Northeastern University, 360 Huntington Ave., (selected list bidders), classroom-laboratory Huntington Ave. $1,500,000. Shepley, Bulfinch, Richardson & Abbott, 1 Court St., Boston, archts. CD 1/13.

▲ **Mass., Wellesley**—SCHOOL—BA 5/12—Town, School Dpt., Rice St., Senior High School addn. $1,000,000. Perry, Shaw & Hepburn, Kehoe & Dean, 31 St. James Ave., Boston, archts. CD 1/6/54.

Conn., Norwich—SCHOOL—BA 5/24—City, School Bldg. Comn., Norwich, Central Elementary School. $640,000. Chandler & Palmer, 16 Franklin St., archts. CD 12/7/51.

SOON LETS CONTRACT—BUILDINGS

Mass., Natick—PLANT—General Electric Realty Corp., 202 State St., Schenectady, N. Y., soon lets contract mfg. plant. $500,000. Stone & Webster Eng. Corp., 49 Federal St., Boston, engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—State Hy. Comn., State House, Augusta,
H. E. Sargent, Inc., Stillwater, Me. CA $1,181,927. b. conc. road and bridge 3.733 mi. F.A. Proj. F 015-1 (1) and F FG-015-1 (2), "15" Winthrop. Bids Apr. 13. CD 3/29.

▲† **The Lane Constr. Corp.,** Box 911, Meriden, Conn. LB $3,484,269. aircraft pavements, etc., Dow Air Force Base, ENG-19-016-55-72, BANGOR, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Apr. 14. CD 3/28.

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston, Zone 16,
Henley-Lundgren Co., 193 Hartford Pike, Shrewsbury, Mass. LB $1,500,182. Contr. 51-073 hy. and bridge constr., Sturbridge. Bids Apr. 14. CD 3/21.

▲ **MASSACHUSETTS** — Massachusetts Turnpike Auth., 80 Boylston St., Boston, Zone 16,
Berlanti Constr. Co., 15 Oakland Ave., Harrison, N. Y. LB $3,584,173. Contr. No. 51-054, hy. and bridge, Palmer. Bids Apr. 12. CD 3/15.

† **Frouge Constr. Co., Inc.,** 141 North Ave., Bridgeport, Conn., LB, $847,675, special AAA facilities (Fairfield) Bridgeport Area, CONNECTICUT. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Apr. 12. CD 3/30.

BUILDINGS

LOW BIDS AND CONTRACTS

J. S. Nasin Co., North Windham Rd., Willimantic, Conn., LB, $611,000. East Great Plain Elementary SCHOOL, New London Turnpike, NORWICH, CONN. City, City Hall, Norwich, Conn. Bids Apr. 12. CD 3/15.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

▲ **N. J., New Brunswick**—BA 5/20—Middlesex County Sewerage Auth., 103 Bayard St., Contract No. 12, incl. 10,700 ft. 84 in. outfall sewer on land and 6,500 ft. in Raritan Bay; 3,600 ft. 8 in. water mains, 3,300 ft. access road and appurtenant work. Plans deposit $25. Metcalf & Eddy, 1300 Statler Bldg., Boston 16, Mass., engrs.; adv ENR 4/28. CD 10/30/53.

▲ **N. J., New Brunswick**—BA 6/3—Middlesex County Sewerage Auth., 103 Bayard St., Contr. No. 15, central treatment plant-general; Contr. No. 15A, structural steel and misc. iron; Contr. No. 15B, plumbing, gas fitting, process piping and pumping; Contr. No. 15C, heating and ventilating; Contr. No. 15D, electrical work for central treatment plant. Plans deposits Contract No. 15, $90; 15A $25; 15B $55; 15C $20; 15D $50. Metcalf & Eddy, 1300 Statler Bldg., Boston, 16, Mass., engrs.; adv. ENR 4/28. CD 10/30/53.

▲ **N. Y., Brooklyn**—PIERS REHABILITATION—BA 6/23—U. S. Eng., 111 E. 16 St., New York, Zone 3, rehabilitation of Piers at Brooklyn Army Base. $1,000,000-$3,000,000. Leonard S. Wegman, Grand Central Terminal Bldg., New York, Zone 17, archt. CD 10/15/52.

BIDS ASKED—BUILDINGS

▲ **Md., Towson**—SCHOOL—BA 5/11—Baltimore Co. Bd. Educ., Aigburth Rd., masonry Dumbarton Junior High School Dumbarton Rd., west of York Rd., north of Baltimore, $1,250,000. Plans deposit $50, Smith & Veale, 2127 N. Charles St., Baltimore, Zone 18, archts.

▲† **Md., Camp Detrick**—LABORATORY—BA 6/8—U. S. Eng., First and Douglas St. N.W., Wash. 25, D. C., S.O. Division Biological Laboratory with air-incinerator bldg., ENG-49-080-55-11 (9), Est. $5,000,000. CD 4/6.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **American Locomotive Co.,** 30 Church St., New York, N. Y., LB $563,429 (1) Long Sault Dam; LB $476,509 (2) Iroquois Dam; LB $1,017,183 (3) combination furnishing towers, guides, sills and dogs for all spillway gates at Long Sault Dam and for all control gates, Iroquois Dam, Spec. No. PA 5-15078, St. Lawrence Contr. No. P9, NEW YORK. Power Authority of the State of New York, 270 Broadway, New York. Bids Apr. 13. CD 4/5.

▲ **Merritt-Chapman & Scott Corp.,** 260 Madison Ave., New York, N. Y., and **Savin Constr. Corp.,** 10 Village St., East Hartford, Conn., LB $36,328,260. constr. Barnhart Island Power Plant, near Massena, St. Lawrence Co., Spec. PA 5-11001, St. Lawrence Contr. No. 9, NEW YORK. The Power Authority of the State of New York, 270 Broadway, New York 27, N. Y. Bids Apr. 15. CD 2/21.

▲ **NEW YORK**—Jones Beach State Parkway Auth., Admin. Headquarters, Belmont Lake State Park, Babylon,
Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., LB $2,133,425, Contr. 3A, grading, drainage, paving, grade separations for exten. Meadowbrook State Park, East Gate Blvd. to Northern State Parkway, Nassau Co. Bids Apr. 12. CD 3/25.

▲ **NEW YORK**—Triborough Bridge & Tunnel Auth., Admin. Bldg., Randall's Island, New York, Zone 35,
Nassau-Mascali Constr. Corp., 69-34 51 Ave., Woodside, N. Y., LB $2,244,250, base; LB $2,222,147, Alt. for Contr. CB-2, grading, drainage, utilities, paving, Linden Blvd. to Atlantic Ave., Brooklyn and Queens Boros. Bids Apr. 14. CD 3/29.

▲ **Westinghouse Air Brake Co.,** 350 Fifth Ave., New York 1, N. Y., LB $6,499,325, furnishing, installing block signalling and interlocking equipment for Rockaway Line south of north Channel Drawbridge to Far Rockaway and to Rockaway Park, IND. DIV., Queens Boro., NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Apr. 14. CD 3/14

▲† **Dutcher Constr. Corp.,** Queenstown, Md., CA $2,197,843, excavate 2,575,000 cu. yd. material for Grass River Lock, Seaway; 2,700 ft. and 4,800 ft. dikes, near Massena, CIV-ENG-30-023-55-54, NEW YORK. U. S. Eng., Engineer Park, Niagara and Bridge Sts., Buffalo 7, N. Y. Bids Mar. 25, awarded Apr. 11. CD 3/29 under LB.

† **E. J. Albrecht,** 2626 W. 26 St., Chicago, Ill. LB $817,480, local flood protection proj. channel imprv., North Branch, Potomac River Sect. 1, Cumberland, Md. and Ridgely, W. Va., CIVENG-49-080-55-46, MARYLAND and WEST VIRGINIA. U. S. Eng., First and Douglas Sts. N.W., Wash., D. C. Bids Apr. 13. CD 3/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Stone & Webster Engineering Corp.,** 49 Federal St., Boston 7, Mass. Design, Supervise and Construct;
General Electric Co., River Rd., Schenectady 1, N. Y. CA, 200,000 kw. turbo generator;
Combustion Engineering, Inc., 200 Madison Ave., New York 16, N. Y., CA, boiler for expansion of Huntley Steam Electric GENERATING STATION, in nearby township of Tonawanda. BUFFALO, N. Y. Total est. $30,000,000. Niagara Mohawk Power Corp., 300 Erie Blvd. W., Syracuse, N. Y. CD 1/24.

▲ **Brentwood in the Pines,** c/o Alwin Cassens, Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. $2,400,000. 200 HOUSES, 50-acre tract Washington Ave., BRENTWOOD, N. Y.

▲ **Surrey Oaks Homes,** c/o Herman H. York, archt., 90-04 161 St.; Jamaica, N. Y. Owner Builds. $1,250,000. 45 HOUSES, Sawyer Ave. and Springfield Blvd., HOLLISWOOD, N. Y.

▲ **Vidoni Estates,** c/o John J. Braglia, 1601 Hempstead Turnpike, Elmont, N. Y. Owner Builds. $2,000,000. 140 houses, 75-acre tract Larkfield Rd. and Cedar St., HUNTINGTON, N. Y.

▲ **Joseph P. Blitz, Inc.,** 150 E. 39 St., New York 16, N. Y., CA est. $1,500,000. 19 story OFFICE, 635 Madison Ave., northeast corner 59 St., NEW YORK, N. Y. 635 Madison Ave. Corp., c/o contractor. Emery Roth & Sons, 575 Madison Ave., New York 22, N. Y. archts.

▲ **Avenue Building Corp.,** B. G. King, pres., Ellicott Square Bldg., Buffalo, N. Y. Own Forces. $2,000,000. 28-30 STORE SHOPPING PLAZA, on 27-acre tract, Delaware Ave.; $1,500,000, 92 HOMES, parking for 500 cars, TONAWANDA, N. Y. Backus, Crane & Love, 232 Delaware Ave., Buffalo, N. Y., engrs.-archts.

▲ **Cedarbrook Homes, Inc.,** 1454 Greenwood Ave., Phila. Pa., Separate Contracts. $1,250,000. 80 RESIDENCES, Chalfont Dr., PHILA., PA.

▲ **John McShain, Inc.,** 17 and Spring Garden Sts., Phila. 30, Pa., CA Est. $2,500,000, long lines central OFFICE BLDG., WAYNE, PA. American Telephone & Telegraph Co., 400 Hamilton Ave., White Plains, N. Y. Bids Apr. 6. CD 3/18.

▲ **Whitemarsh Downs, Inc.,** 7444 Washington Lane, Elkins Park, Pa. Separate Contracts. $1,064,000. RESIDENTIAL DEVELOPMENT, Washington Lane, WYNCOTE, PA.

Parker Constr. Co., 2408 Aisquith St., Baltimore 18, Md. LB $957,000. concrete, steel, masonry Cherry Hill Elementary SCHOOL, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids Apr. 13. CD 3/30.

Kem Builders, Inc., 145 Kennedy St. N.W., Wash. D. C. Owner Builds. $520,000, 40 brick split-level rambler HOMES in Murray Hill subdivison, OXEN HILL, MD. J. D'Epagnier, 1004 Ripley St., Silver Spring, Md., archt.

John Tester & Son, 1620 Second St. S.W., Wash., D. C. LB $996,494, est. $750,000. John Hanson Junior High SCHOOL replacing proposed Sheriff Knoll's Junior High School, Seat Pleasant, UPPER MARLBORO, MD. Dpt. Educ., Prince George's Co., Upper Marlboro, Md. Bids Apr. 12. CD 3/25.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

▲† **La., Lake Charles**—ORDNANCE STORAGE FACILITIES—BA 5/24—U. S. Eng., P. O. Box 1229, Galveston, Tex., ordnance storage facilities, Lake Charles Air Force Base, ENG-41-243-55-63. $1,000,000-$3,000,000.

▲† **Tenn., Tullahoma**—SUPERSONIC CIRCUIT STRUCTURES—BA About 6/2—U.S. Eng., Tullahoma, supersonic circuit structures, paving and drainage for Propulsion Wind Tunnel, Arnold Engineering Development Center, ENG-40-126-55-20. CD 2/24.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,
La.—W. R. Aldrich & Co., 2493 Baywood Ave., Baton Rouge, La. LB $1,292,325. Comb. 1, $1,458,062. Comb. 2 high level I-beam span fixed bridge 0.57 mi.

(Continued on page 90)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

47% advantage for rubber over tracks

Widening road to Ohio Turnpike,
7-yd. Tournapull averages 60 yds. per hour. Slower 11-yd. crawler-scrapers average only 41-yds. in spite of 400 ft. shorter cycles.

	122 hp, 7-yd. D Tournapull	93 hp crawler, 11-yd. scraper	148 hp crawler, 11-yd. scraper
Load time self-loading sandy clay (all units in same pit)	1.2 Min.	Not timed	Not timed
Total cycle time	4.5 Min.	12.7 Min.	10.3 Min.
Haul distance one-way	1100′	1100′	1100′
Return distance	1500′	1100′	1100′
Return speed on 1000′ of paved road in traffic:	14 MPH	Could not haul on pavement	
Top speed possible	28 MPH	6 MPH	5 MPH
Trips per 55-minute hour	12	4½	5½
Yards per 55-minute hour	60	38	44

The above figures are averages of a day-long time study made by field engineers on Kane, Ohoro & Haenny, Inc. 8-mile road widening job between Youngstown and the Ohio Turnpike. The 47% advantage computed for the Tournapull was called "conservative" by the contractors. Based on their experiences on Turnpike subcontracts, they estimate the one "D" will move as much dirt, over-all on this job, as two crawler-drawn scrapers combined. And here's another advantage...

D Tournapull hauls on blacktop where crawlers can't travel

Most of the time, rubber-tired "D" traveled down the 3-lane blacktop highway, spread its sandy-clay loads along either shoulder. Its high speed on rubber, plus fast-acting 4-wheel air brakes and power steer, allowed the rig to travel safely and fast through open traffic. The crawler-scrapers, on the other hand, could not haul on the pavement, and therefore had to spread all their loads on shoulder on same side of road as borrow pit.

Comparing the two dirtmovers, Company Partner Albert Haenny says, "On 90% of your work you're better off with the D Tournapull. Even on short hauls, the smaller 'D's' will move almost as much dirt as bigger units when you average it out."

Superintendent Paul Ellis agrees. "I like many things about D Tournapulls," he says. "They can travel across the road without planking and work both sides. They're fast and can get around where other rigs can't. They're worth their weight in gold on road jobs like this one."

For low-cost dirtmoving, investigate Tournapull maneuverability and 28 mph speed for yourself. Write or call us for a demonstration on your job. See for yourself what the "D" can do...either self or pusher-loaded...alone on scattered odd jobs or in fleets on big-yardage assignments.

Tournapull—Trademark Reg. U.S. Pat. Off. DP-709-H-b

Now available — FREE — a valuable new reference book — "Earthmoving, An Art and a Science". Contains 60 pages of detailed information on how to increase output and lower dirtmoving costs. Unbiased. Written by experienced field engineers . . . checked by veteran dirtmovers. For your free copy, call your Distributor or write to LeTourneau-Westinghouse Company, Peoria, Illinois.

Send to: LeTOURNEAU-WESTINGHOUSE COMPANY, Peoria, Illinois

Your Name .....

Title .....

Company .....

Address .....

(Street, City, State)

DP-709-H-b

Scraper Storage Machines consist of these essentials:

(1) a hoist with power unit, either electric, diesel or gasoline.
(2) the Crescent Scraper Bucket.
(3) the operating cables and guide blocks.
(4) a method of shifting.

(The above installation uses a monorail and tail trolley system to shift the Crescent to another part of the building.)

A Sauerman Roller-Bearing Hoist can be placed almost anywhere inside the storage building or outside. Crescent Scrapers handle any bulk material at rates ranging from 20 to 600 cu. yds. per hour.

Various methods of shifting can be used, including the use of a third hoist drum or a separate shifting winch. Both of these methods give automatic control from the operator's station, with no personnel entering the storage area. One man controlling one machine, stores or reclaims at the lowest cost for labor and maintenance.

For ways to reduce your material handling costs, write to Sauerman's experienced engineers. Request Catalog E, *Bulk Storage by Scraper* and pertinent Field Reports on the handling of your material by Sauerman Machines.

SAUERMAN BROS. INC.
632 S. 28th AVE. BELLWOOD, ILLINOIS

"Gunite" ..... the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

(Continued from page 88)

Pass Manchac Bridge on Ponchatoula-Frenier Hy., State Rte. 33, S.P. 17-02-22, Tangipahoa and St. John the Baptist Parishes;

La.—**Boh Bros. Constr. Co.**, 2400 Cypress St., New Orleans, La. LB $968,708. overpass grading, drainage structures 0.257 mi. overpass south of Broad (Ponchartrain Expressway) State Rte. 2200, S.P. 283-08-07, FAP U 409-6, Orleans Parish. Bids Apr. 13. CD 3/18 and 3/23.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Little Constr. Co., Inc.**, Builders Bldg., Charlotte, N. C., CA $1,045,762, COTTAGES, four 132-bed; two 40-bed, at Butner Training School, BUTNER, N. C. State Hospitals Bd. Control, Capitol Bldg., Raleigh, N. C. Bids Mar. 3, CD 3/17, under LB.

† **Thompson & Street Co.**, Pineville Rd., Charlotte, N. C., CA, $849,452. rehabilitation and constr. Phase III, Charlotte Ordnance Missile PLANT, ENG-31-075 (Neg 55-5), CHARLOTTE, N. C. U. S. Eng., Customhouse, Wilmington, N. C. CD 4/11, under LB.

▲ **Catalytic Constr. Co.**, 1528 Walnut St., Phila. 2, Pa., CA, Est. $3,000,000, design and construct titanium tetrachloriade production PLANT, NATRIUM, W. VA. Columbia-Southern Chemical Corp., sub. Pittsburgh Plate Glass Co., Grant Bldg., Pittsburgh, Pa.

Ed. L. Powers, Jesup, Ga., LB, $1,550,800. Cairo High SCHOOL, Washington Consolidated School; Bechbranch Elementary School; Shiver Elementary School, CAIRO, GA. State School Bldg. Auth., 41 Exchange Pl. S.E., Atlanta, Ga. Bids Mar. 31. CD 3/1.

E. A. Scott & Sons, Americus, Ga., CA, $632,997 elementary and high SCHOOL (white), combination elementary and high SCHOOL (colored), elementary SCHOOL for colored, MOUNT VERNON, GA. State School Bldg. Auth., 41 Exchange Pl. S. E., Atlanta, Ga. Bids Mar. 17. CD 3/25, under LB

A. B. Newton, Box 191, Vidalia, Ga., LB, $837,854 Summerville High and Elementary SCHOOL Pennville White Elementary SCHOOL, Menlo White Elementary and High SCHOOL, Walmeyer Elementary, Subligna elementary and High SCHOOL, CAFETERIA addn. to Summerville High and Elementary School addns., SUMMERVILLE, GA. State School Bldg. Auth., 41 Exchange Pl. S.E., Atlanta, Ga. Bids Apr. 5.

▲ **H. M. Pafford Jr.**, Wayross, Ga., CA, $1,500,000, design and construct, PLANT, WAYCROSS, GA. Scapa Dryers, Inc., Blackburn, England.

Atlas Constr. Co., Box 1006, Texarkana, Tex. CA $513,500, est. $500,000. 1 story, brick Junior High SCHOOL, on Minden Rd., Bossier City, BENTON, LA. Bossier Parish School Bd., Benton, La. Bids Apr. 7. CD 3/30.

Caldwell & McCann, Box 477, Baton Rouge, La. CA $614,964. GYMNASIUM and ACADEMIC BLDGS., THIBODAUX, LA. State Bldg. Auth., Capitol Bldg., Baton Rouge, La. Bids Apr. 5 awarded Apr. 7. CD 4/12, under LB.

MIDDLE WEST

SOON LETS CONTRACT—BUILDINGS

▲ **Ill., Chicago**—WAREHOUSE—Ferdinand-Pulaski Corp., 500 N. Pulaski St., soon lets contract warehouse, $2,000,000. A. Epstein & Sons Co., 2011 Pershing Rd., Chicago, Zone 9, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,

O.—**D. R. Smalley & Sons, Inc.**, 436 W. Market St., Celina, O., CA $2,310,775, est. $2,622,200, Type T-71 and T-35 and structures, U.S.R. 25, sects. 0.00, 23.57; S.R. 71, Sect. 13.73; U.S.R.40, Sects. (16.62) (17.01), IN-196 (2), Village of Vandalia, Butler Twp. and Monroe Twp., Miami and Montgomery Counties;

Robert J. Dienst & Son, 297 S. High St., Columbus, O., CA $880,001, est. $912,000, Type T-35 and structure, S.R. 16, Sects. (5.36-7.05), Village of Whitehall and Truro Twp., Franklin Co. Bids Mar. 29. CD 4/5 under LB.

ILLINOIS—State Div. Hys., Springfield,

Leininger Constr. Co., 30 N. La Salle St., Chicago 2, Ill. CA $714,528, c. conc. paving 0.77 mi. 2 concrete paving interchange ramps and 2 parallel I-beam grade separations carrying US 66 over Alt. US 66, Will Co. Bids Apr. 1, awarded Apr. 13. CD 4/6, under LB.

▲ **Michael Pontarelli**, 4248 N. Kilpatrick St., Chicago, Ill., CA, $1,560,088, Roscoe St. Auxiliary Sewer Proj., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Feb. 16, awarded Apr. 11. CD 2/25, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Paxton & Parsley Co., Inc.**, 2103 E. 21 St., Cleveland, O. Owner builds. $4,800,000. 140 HOMES, 180-acre site, Mayfield Rd., Chester Twp., CHARDON, O.

▲ **Gilmore-Olson Co.**, 1873 E. 55 St., Cleveland, O., CA Total est. $4,000,000. LABORATORY, RESEARCH and ADMINISTRATIVE CENTER, 66-acre site, near Snow Rd. and W. 130 St., in Parma, Cleveland, O. Union Carbide & Carbon Corp., Box 6087, Cleveland, O. CD 3/7.

▲ **Fegles Constr. Co., Ltd.**, Wesley Temple Bldg., Minneapolis, Minn., CA, Est. $1,300,000, 57-tank, 127 ft. high, 2,187,000-bu. GRAIN STORAGE at existing 3.5 million bu. terminal on Grove Rd., also carp dump, COLUMBUS, O. Farm Bureau Cooperative Assn., 245 N. High St., Columbus, O.

(Continued on page 92)

Westinghouse Company, Peoria, Illinois.

Address .....
(Street, City, State)

DF-709-H-b

Simple rear-dump construction pays off

Construction of the Tournapull Rear-Dump has been radically simplified from that of a conventional heavy-duty hauler. In place of a foundation frame and body sub-frame, Tournapull Rear-Dump hitches rear and front wheels through a horizontal yoke extending back from the kingpin and pivoted to the body itself just above and ahead of the rear wheels. Body is simpler, much stronger . . . has no frame and sub-frame to get out of line.

Look at the photo above . . . note the absence of springs, spring hangars, and tie rods. Low-pressure tires adequately absorb the shocks of rough haul-road travel and high-speed loading. Eliminated are spring maintenance, replacement time and cost of spring parts.

Front wheel drive and kingpin-type steering help simplify Tournapull construction, too. No longer must power be carried back to the rear through a drive-shaft. Bearing and lubricating problems of a long drive-shaft are eliminated. No longer is steering handled by small front wheels subject to misalignment. There are no tie rods, no hinged steering connections to become twisted or bent.

Nor do you have the troubles of hydraulic hoists or gravity dumping with these Rear-Dumps. Dump is by an electric winch that lifts the body up on twin cables. Operation is under complete control at all times, with positive power for dump and return controlled by an electric switch on the dash. There are no oil seals, no high-pressure lines and jacks to keep tight, no freezing up in cold weather as with hydraulics. There are no shock loads as in gravity dumping. You save on regular maintenance time because there is no hoist mechanism to check . . . only a few places to lubricate.

Let us show you how these savings can put money in *your* pocket. For proof, we'll be glad to show you performance figures from a job like yours, or, if you wish, give you names and addresses of owners of Tournapull Rear-Dumps, so you can check for yourself. Call soon.

Tournapull Rear-Dumps Come in Sizes to Fit Your Needs

"D"	"C"	"B"	"A"
9 tons	22 tons	35 tons	50 tons
138 hp	208 hp	293 hp	420 hp

Prime-movers also power interchangeable scrapers, bottom-dumps, flat-beds, and cranes.

Tournapull—Trademark Reg. U.S. Pat. Off. R-774-G-b

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

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Coolite Wire Glass protects against shatter damage, resulting from fires. And the Coolite wire glass adds beauty to the exterior —the clean, blue hue harmonizes with the crisp, modern design.

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Consulting Engineer: Harry H. Bond
General Contractor: William P. Lotz, Inc.
Glass and Glazing by McKeon, Inc.

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SPRAGUE & HENWOOD, Inc.
Dept. E, Scranton 2, Penna.

(Continued from page 90)

▲ **Ohio State Homes,** 1595 Shawnee Ave., Columbus, O. Owner Builds. $2,500,000. 200 one story ranch type with bsmnt. HOMES, along Case Rd., FRANKLIN, O.

▲ **Koppers Co.,** Koppers Bldg., Pittsburgh, Pa., CA Total est. $10,000,000. constr. new battery of 31 by-product COKE OVENS at Massillon steel plant, MASSILLON, O. Republic Steel Corp., Republic Bldg., Cleveland 13, O. CD 10/27/53.

Carl M. Geupel Constr. Co., 1919 N. Meridan St., Indianapolis, Ind., CA $500,000. PLANT expansion, INDIANAPOLIS, IND. Pittman-Moore Co., Madison Ave. and Morris St., Indianapolis, Ind.

Carl M. Geupel Constr. Co., 1919 N. Meridian St., Indianapolis, Ind., Ca $500,000 PLANT expansion ZIONSVILLE, IND. Pittman-Moore Co., Madison and Morris Sts., Indianapolis, Ind.

▲ **Max M. Ableman,** 1717 Mulford St., Evanston, Ill., Own Forces, $1,100,000. 75 HOMES, along Ridge Rd. HIGHLAND PARK, ILL. A. J. Del Bianco, 5501 Irving Park Rd., Chicago, Ill., archts.

▲ **Inland Constr. Co.,** 134 N. La Salle St., Chicago 2, Ill., CA, $20,000,000 STORES in "Old Orchard Business District", SKOKIE, ILL. American Community Builders, No. 2, Plaza, Park Forest, Ill. Loeb, Schlossman & Bennett, 430 N. Michigan St., Chicago 11, Ill., archts. Awarded Apr. 5. CD 8/17/50.

▲ **Atkin & Fordon Co.,** 7360 W. Chicago St., Detroit, Mich. CA $1,708,000. addns. E and F to Fitzgerald High SCHOOL, VAN DYKE, MICH. Warren Twp., School Dist. 7, Van Dyke, Mich. Bids Mar. 31. CD 3/28.

WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

▲ **Tex., San Marcos**—MILL—Bids Asked—Cone Mills, Inc., Proximity, Greensboro, N. C., textile mill, $7,000,000; products storage or warehousing, $250,000. Dan McConnell, c/o owner, ch. engr. Lockwood Greene Engineers, Inc., Montgomery Bldg., Spartanburg, S. C., and Frank T. Drought, 342 W. Woodlawn Ave., San Antonio, engrs. CD 6/22.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

W. D. Giertsen Co., 900 Glenwood Ave., Minneapolis, Minn. CA $642,098. furnish, install 90,000 lin. ft. 9 in. vitr. sewers, RICHFIELD (MINNEAPOLIS P.O.), MINN. Village, P. H. Haugen, clk., 6700 Portland Ave., Richfield (Minneapolis 23), Minn. CD 4/13, under LB.

▲ **ARKANSAS**—State Hy. Dpt., Little Rock,

Ark.—McGeorge Contg. Co., Inc., foot of Nebraska St., Pine Bluff, Ark., CA, $301,837, grav. base, surf. 7 mi. State Hy. 1, Gillett-Pendleton, Arkansas Co.; CA $726,597, grav. surf., 1 rein.-con. structural steel bridge and 1 rein.-con. slab bridge, 13.106 mi. State Hy. 88, Hot Springs-Lonsdale, Garland Co.;

Ark.—Graves Bros. General Contractors, Dollarway Road, Pine Bluff, Ark., CA, $114,452, wid'n., resurf. 1.7 mi. Hy. 67, Fulton-Texarkana, Miller Co.; CA $272,693, grav. base, surf. 8 mi. State Hy. 64, Wynne-Park, Cross Co.;

Ark.—S. M. Dixon, Contractor, Warren, Ark., CA, $204,905, grav. base, surf. 5.628 mi. State Hy. 82 El Dorado-east, Union Co.;

Ark.—Tecon Paving Co., 1201 Main St., Dallas, Tex., CA, $112,671, wid'n., resurf. 3.4 mi. Hy. 67 Jacksonville-Cabot, Pulaski and Lonoke Counties;

Ark.—Southeast Constr. Co., Inc., 127½ Main St., Pine Bluff, Ark., CA, $281,450, crushed stone base, surf., 1 bridge 8.8 mi. Hy. 21-E & W, Oak Grove-south; Oak Grove-Urbanette, Carroll Co.;

Ark.—D. F. Jones Constr. Co., Inc., Rector Bldg., Little Rock, Ark., CA, $419,595, crushed stone base, surf., 1 bridge Hy. 14, Lead Hill-Summit, Boone and Marion Counties;

Ark.—Ben M. Hogan Co., 1100 Fairview St., Little Rock, Ark., CA, $908,484, crushed stone base, surf. 18.3 mi. State Hy. 82, El Dorado-Magnolia, Union Co.;

Ark.—Forsgren Brothers, 3023 N. 23 St., Fort Smith, Ark., CA, $98,992 grading, drainage 1 rein.-con., structural steel bridge 0.7 mi. State Hy. 95, Scotland-Clinton, Van Buren Co.;

Ark.—William D. Jeffreys Constr. Co., 4201 Towson St., Fort Smith, Ark., CA, $180,069. grading, minor drainage, 2 multi-span culvert extens. 11.054 mi. State Hy. 70, Benton-east, Saline Co. Bids Apr. 13. Grand total $3,621,745. CD 4/7.

▲† **Hallett Constr. Co.,** 1st Natl. Bank Bldg., Crosby, Minn., LB $1,127,952, est. $1,008,259, stringing conductors, overhead ground wires for Big Bend-Huron-Watertown 230 kv transmission line, Transmission Div., Missouri River Basin Proj. Buffalo, Hand, Beadle, Clark, Hamlin and Codington Counties, Spec. DC-4374, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Huron, S. D. Bids Apr. 13. CD 3/9.

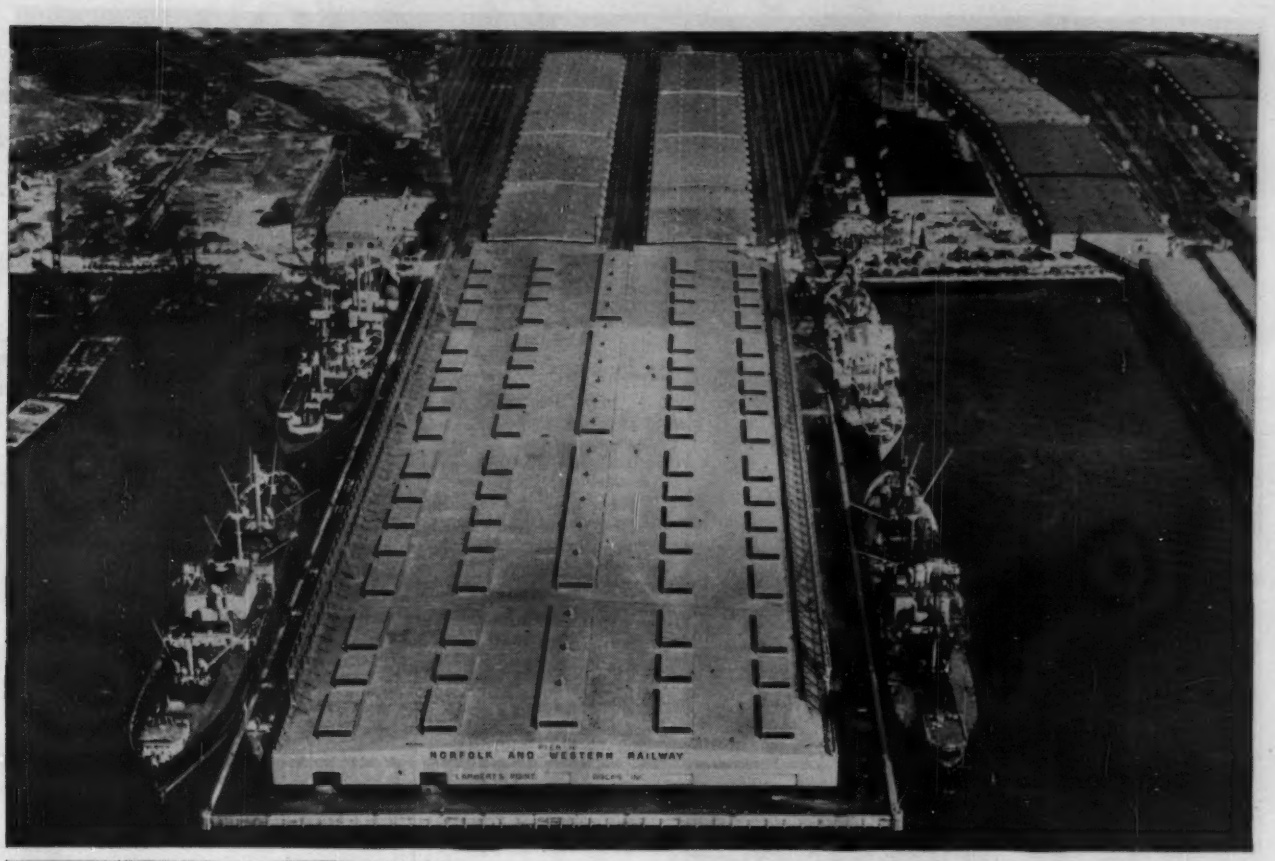
▲† **Bauer-Smith Dredging Co.,** P. O. Box BB, Port Lavaca, Tex., CA, $1,249,505, est. $1,000,000. dredging Avery Point to Tule Lake, CIVENG-41-243-55-53, TEXAS U. S. Eng., Box 1229, Galveston, Tex. Bids Apr. 4. CD 4/6.

† **T. O. Bateson Constr. Co.,** Box 7305, Inwood Station, Dallas, Tex., CA $910,267, Prop. No. 2, Air National Guard Facilities, ENG-41-243-55-87, ELLINGTON AIR FORCE BASE, TEX. U. S. Eng., Box 1229, Galveston, Tex., Bids Apr. 1. CD 4/12, under LB.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver,

Henry Shore Constr. Co., 510 S. Windemere St., Littleton, Colo., CA, $522,248, est. $534,120. grading, struc-

(Continued on page 95)



Elevated pipeline brings concrete direct from Pumpcrete at central mixing plant. Concrete was pumped as far as 1500 feet for pier deck. Concrete for pier deck alone totaled 24,246 cu. yd.

Concrete piles were formed in this casting yard behind the pier. Concrete was delivered through pipeline directly into hoppers. A third pipeline was also run to the land warehouses for placing foundations and floors.

Pumpcrete® places concrete for largest single-deck pier on Atlantic seaboard!

70 miles of precast piles under 10 acres of concrete deck!

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Pumpcrete was also used to place foundations and floors for two land warehouses behind the pier. Three separate pipelines were used from Pumpcrete located next to a unique central mixing plant. One delivered concrete to the pile casting yard, another to the pier and a third to the land warehouses.

By simply changing lines, Pumpcrete delivered concrete immediately to any one of the work areas. And being located right with the mixing plant, concrete was discharged directly into Pumpcrete—thus eliminating additional hauling equipment.

This is another example why Pumpcrete is being used more and more to save time, eliminate expensive hauling equipment and deliver better concrete faster. Look into Pumpcrete's advantages for your next job—you'll be glad you did! See your local Rex Distributor or write: CHAIN Belt Company, 4633 W. Greenfield Ave., Milwaukee 1, Wisconsin.

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HOMELITE CORPORATION
1104 Riverdale Avenue, Port Chester, N. Y.

(Continued from page 92)

tures 11.885 mi. Colo. Proj. FI002-2 (31), Unit 1, Monument, El Paso and Douglas Counties. Bids Apr. 7, awarded Apr. 8. CD 3/31.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Thomas Bate & Sons, 5119 Bellaire St., Houston, Tex., CA $750,000. earth and rein.-con. fdn. work for smelting potline and power house;

American Bridge Co., 525 Wm. Penn Pl., Pittsburgh, Pa., CA $3,250,000. fabrication and erection steel for smelting PLANT bldgs. expansion. Point Comfort, PORT LAVACA, TEX. Aluminum Co. of America (ALCOA), 1200 Alcoa Bldg., Pittsburgh 19, Pa. CD 3/1.

▲ F. J. Kirchhof Constr. Co., 700 Lawrence St., Denver, Colo., CA Approx. $5,000,000, 1 story, 132,000 sq. ft. aircraft equipment FACTORY, DENVER, COLO. Sundstrand Machine Tool Co., 2555 11th St., Rockford, Ill. Bids Mar. 31, awarded Apr. 4. CD 3/25.

FAR WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† Lembke, Clough & King, Inc., 107 W. Wyoming St., P. O. Box 1391, Las Vegas, Nev. CA $903,174, air force communication station, ENG-04-203-55-43, TONOPAH, NEV. U. S. Eng., 180 New Montgomery St., San Francisco 5, Calif. Bids Mar. 18. CD 4/11, under LB.

▲ Gunther-Shirley-Lane, 4460 Sherman Oaks Ave., Sherman Oaks, Calif., CA $2,794,678 intake works, powerhouse and sub-station for Pilot Knob Hydro Plant, EL CENTRO, CALIF. Imperial Irrigation District, 125 S. 5 St., El Centro, Calif. Bids Mar. 29. awarded Apr. 5. CD 4/4, under LB Calif., Imperial.

▲ R. A. Wattson Co., W. E. Kier Constr. Co. & Alex. Robertson Co., joint venture, 12550 Saticoy St. Los Angeles, Calif., CA $2,405,904, lower feeder and Santiago Lateral, Yorba Linda, Orange Co., LOS ANGELES, CALIF. Metropolitan Water Dist. of Southern California, 306 W. 3 St., Los Angeles, Calif. Bids Apr. 6, awarded Apr. 12. CD 4/8, under LB.

▲† Stolte, Inc., 8451 San Leandro St., Oakland, Calif., CA, $1,793,735, concrete dormitories, mess hall, gas and sewerage, street paving, etc. McClellan Air Force Base, SACRAMENTO, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. CD 6/6/52.

BUILDINGS

LOW BIDS AND CONTRACTS

H. J. Farrington, 9207 Lakewood Blvd., Rivera, Calif., LB $711,980, Intermediate SCHOOL, Stamy Rd. and Santa Fe Sts., EAST WHITTIER, CALIF. East Whittier School Dist., 14535 E. Whittier Blvd., East Whittier, Calif. Bids Apr. 7.

Peter Kiewit Sons Co., 345 Kieways Ave., Arcadia, Calif., LB $747,456, Garden Grove High SCHOOL addns. GARDEN GROVE, CALIF. Garden Grove Union High School Dist., 11271 Stanford Ave., Garden Grove, Calif. Bids Apr. 7.

▲ Beverly Development Co., 8549 Wilshire Blvd. Los Angeles, Calif. Owner Builds, $1,490,600, 172 DWELLINGS, Harsville St., Arvilla, Siesta and Mayland Aves., PUENTE, CALIF. Martin Stern, 450 N. Beverly Dr., Beverly Hills, Calif., archt.

▲ E. H. Moore & Sons, 693 Mission St., San Francisco, Calif., LB $3,175,000, COURT HOUSE, VISALIA CALIF. Tulare Co. Court House, Visalia, Calif. Bids Apr. 12. CD 2/28.

▲ Kauffman Homes, Inc., 2918 W. Compton Blvd., Gardena, Calif. Owner Builds, $1,080,000. 125 frame, stucco DWELLINGS, Tract 20520, WEST COVINA, CALIF.

CANADA

BIDS ASKED—BUILDINGS

▲ Que., Montreal—OFFICE—BA 5/3—Sternthal Realty Co., 1435 St. Alexander St., 15 story, 76x130 ft., rein.-con., brick, 2 stories underground office bldg., City Councillars and Mayor Sts. $1,000,000. Mayerovitch & Bernstein, 1500 St. Catherine St. W., archts. I. S. Backler, 5253 Decarie Blvd., engr.

▲ Que., Valleyfield — BUILDINGS — BA 5/6 — Defence Constr. Lt., 56 Lyon St., Ottawa, Ont., 8 buildings for Army, $1,400,000. Plans deposit $100.

▲ Ont., Brantford—HOSPITAL SUPERSTRUCTURE—BA 5/10—Brantford General Hospital, Terrace Hill and Ontario St., superstructure for 2 wings L-shaped 6 story, 67x100 ft. and 45x150 ft., concrete, brick, tile hospital addns. $4,500,000. H. J. Smith, 62 Charles St. E., Toronto, and Chas H. Brooks, 11 George St., Brantford, archts. Neergaard, Agnew & Craig, 134 Bloor St. W., Toronto, engrs. CD 3/23/53.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Turnbull & Gale Constr. Co. Ltd., 168 East 2 St., Vancouver, B. C., LB, $1,490,984, Churchill High SCHOOL, 57 Ave. and Heather St., VANCOUVER, B. C. School District No. 39, 1595 West 10 Ave., Vancouver, B. C. Bids Mar. 31. CD 3/7.

▲ Wayne Building Development Ltd., 2100 Bathurst St., Toronto, Ont. Owner Builds. $20,000,000. Satellite COMMUNITY CENTER, incl. 1,000 low rental houses and shopping center, TORONTO, ONT. CD 4/15.

▲ Foundation Co. of Canada Ltd., 1220 Bay St., Toronto, Ont., CA Est. $2,000,000, 120,000 sq. ft., 1 story

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Shelton Well Field	Bridgeport Hydraulic Company
The Connecticut Expressway	Ammann & Whitney, Engineers
Casco Bay Power Project	Central Maine Power Company
Delaware River Power Project	Jackson & Moreland Co., Engineers
Southeast Expressway, Mass.	Massachusetts Dept. of Public Works
Narrows Bridge Site, Brooklyn & Staten Is., N. Y.	Ammann & Whitney, Engineers
125th Street Bridge Site, N. Y. C.	Ammann & Whitney, Engineers
Narragansett Bay	New England Power Service Company
Baker River (Wash.) Hydraulic Development	Stone & Webster, Engineers
St. Lawrence Power Project	Sanderson & Porter, Engineers
Massachusetts Turnpike	Howard-Needles-Tammen & Bergendoff, Engineers
Garden State Parkway, New Jersey	Goodkind & O'Dea, Engineers
The Connecticut Expressway	Loomis & Sullivan, Engineers
The Connecticut Expressway	Knappen-Tippetts-Abbett-McCarthy, Engineers
Portland, Pa. Power Plant	Metropolitan Edison Company

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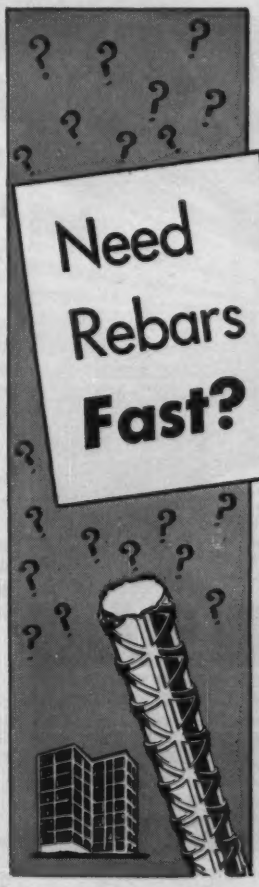

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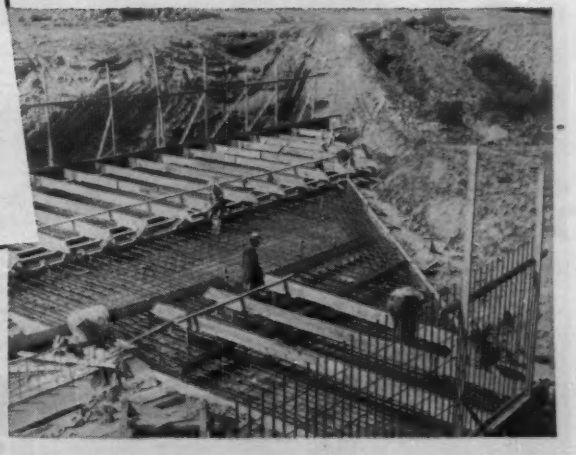

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85 Industrial St.....SAN FRANCISCO 24
1932 First Avenue.....SEATTLE 1
207 Queens Quay West.....TORONTO, CAN.

FACTORY section and 2 story OFFICE section, steel, brick constr., Cote de Liesse Rd., MONTREAL, QUE. Gillette Safety Razor Co. of Canada, Ltd., 1085 St. Alexander St., Montreal, Que. Ross, Patterson, Townsend & Fish, 4115 Sherbrooke St. W., Montreal, Que., archts. Awarded Apr. 12.

▲ **Lakeview Acres, Inc.**, Lakeside, Pointe Claire, Montreal, Que. Owner Builds, $2,000,000. 150 unit HOUSING DEVELOPMENT, at Pointe Claire, MONTREAL, QUE. J. C. Merrett, 1019 Canada Cement Bldg., Montreal, Que., archt.

Proposed Projects

WATER SUPPLY

▲ **Md., Towson**—Bd. Comrs., Baltimore Co., Michael J. Birmingham, pres., Court House, extending, reinforcing county water distr. sys.,
Catonsville area—elevated tank, $185,578; valve vault, $70,000; transmission mains, $380,000.
Pikesville area—pumping station, $246,290; transmission mains, $391,000.
Towson area—transmission mains $598,225; elevated tank, $129,129; addn. to pumping station, $169,250.
Eastern Zone—transmission mains, $300,000.
High Point Blvd. Main, $220,000.
servicing, subdivision and neighborhood water extens., various, $2,241,000.

▲ **Mich., Detroit**—Bd. Supervs. Wayne Co., 3800 Cadillac Tower, voted bonds Apr. 4, water intake and filtration plant. $50,000,000. Leroy Smith, co. engr. CD 3/4.

SEWERS, WASTE DISPOSAL

▲ **Colo., Denver**—City and Denver Co., City and County Bldg., bond election May 17, imprv., extending sanitary sewerage sys. $1,300,000. Dewey Wright, city engr.

▲ **Mont., Great Falls**—City, City Hall, voted $2,285,000 bonds Apr. 4, exten. sewerage sys. CD 11/24/47.

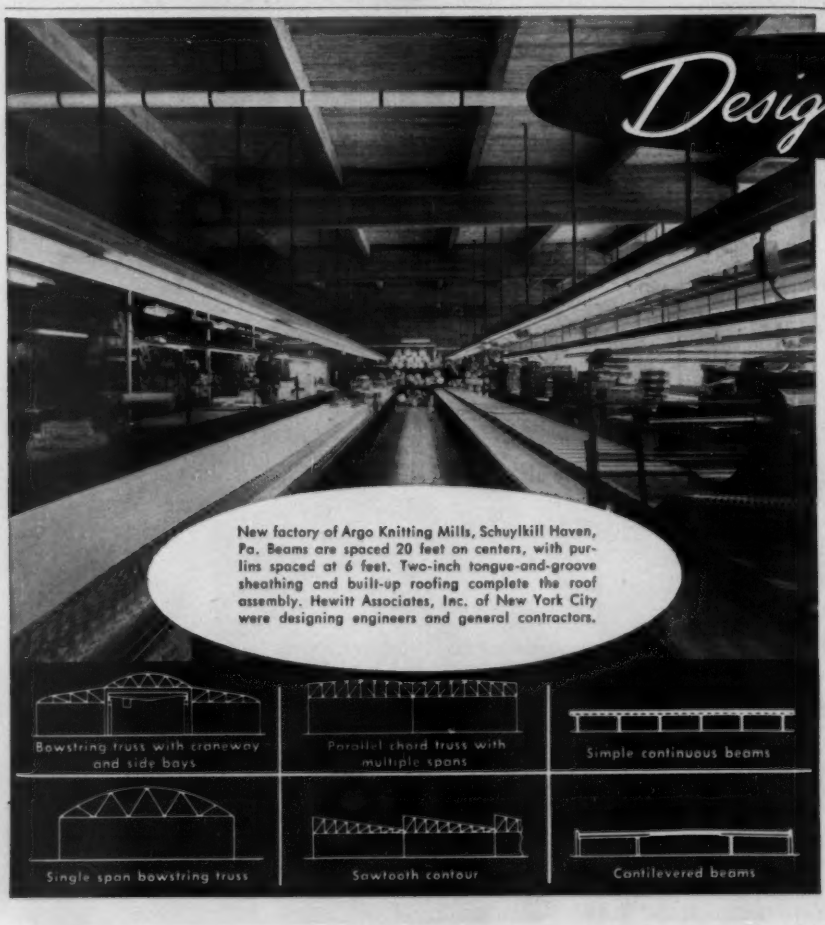
BRIDGES

▲ **Mass., Boston**—City, Dpt. P. Wks., City Hall Annex, bridge repairs, Boston and Charlestown. $1,200,000. Charles A. Maguire & Assoc., 14 Court Square, consult. engrs. CD 8/30/45.

STREETS AND ROADS

▲ **Colo., Denver**—City and Denver Co., City and County Bldg., bond election May 17, expanding, extending,

(Continued on page 98)


Bowstring truss with craneway and side bays
Parallel chord truss with multiple spans
Simple continuous beams
Single span bowstring truss
Sawtooth contour
Cantilevered beams

New factory of Argo Knitting Mills, Schuylkill Haven, Pa. Beams are spaced 20 feet on centers, with purlins spaced at 6 feet. Two-inch tongue-and-groove sheathing and built-up roofing complete the roof assembly. Hewitt Associates, Inc. of New York City were designing engineers and general contractors.

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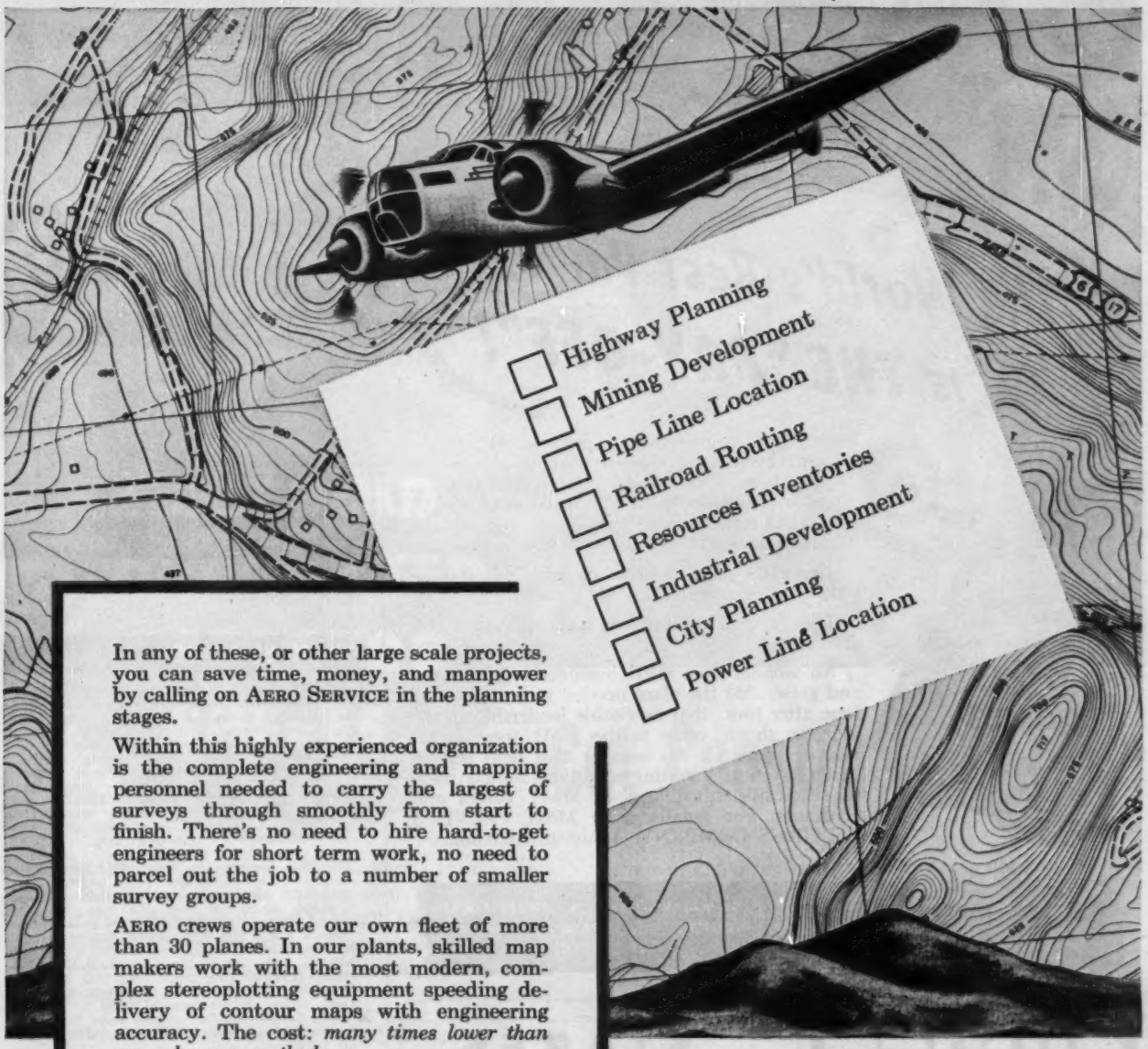

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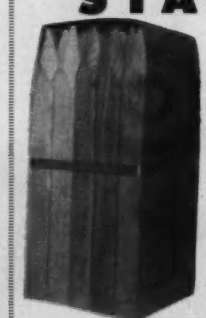

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(Continued from page 96)

improv. system of streets, highways, viaducts, bridges and other public ways $8,700,000. Dewey Wright, city engr.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, **Queens Co.**—Contr. 2 of Sect. 1, Horace Harding Expressway from Queens Blvd. to approx. 525 ft. east of Grand Central Parkway, approx. 7,400 ft. $6,160,000.

▲ **NEW YORK**—Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany, **Nassau and Suffolk Counties**—Long Island Expressway from New York City Line to Riverhead via Mineola and Levittown. $140,000,000.

▲ **Okla., Enid**—Garfield Co., Enid, $1,300,000 bond election May 10, county roads,

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, toll booths and utility bldgs. for Northeast Turnpike Exten. between Phila. and Scranton. $4,000,000. CD 10/28/53.

EARTHWORK, WATERWAYS

▲† **Kentucky**—U. S. Eng., P. O. Box 2127, 237 Fourth Ave., Huntington 18, W. Va., lock sys. at proj. high level dam on Ohio River at Greenup, $20,000,000.

▲ **Mich., Detroit**—Bd. Supervs. Wayne Co., 3800 Cadillac Tower, voted bonds Apr. 4, drainage and flood control Rouge River Valley. $5,000,000. Leroy Smith, co. engr. CD 3/4.

▲ **Ontario**—Ottawa Hydro Electric Power Comn., Sparks St., Ottawa, hydro-electric development, incl. underground cable circuits from Riverdale transformer station to Hydro Property on Stater St., Ottawa. $1,400,000.

AIRPORTS

▲† **N. D., Grand Forks**—JET AIR BASE—U. S. Eng., 1709 Jackson St., Omaha, Neb., plans by Forx-Stanley Eng. Co. (K. B. MacKichan & Assocs., Lloyde Richmond, Grosz & Anderson of Grand Forks and Stanley Eng. Co., Muscatine, Ia.), 314½ DeMers Ave., Grand Forks, archts-engrs., jet air base $10,000,000. CD 1/3.

▲ **Ont., Ottawa**—WIND TUNNEL—Dpt. P. Wks., Hunter Bldg., plans by E. A. Gardner, c/o owner, supersonic wind tunnel at Uplands Airport, for R.C.A.F. and National Research Council. $3,500,000.

LATIN AMERICA

▲ **Ecuador, Guayaquil**—Comite Ejecutive de Vialidad, Calle Velez No. 109, plans, constr. new port. $10,000,000-$12,000,000. Owner is seeking engineer and contractor. CD 12/31/52.

PUBLIC BUILDINGS

▲ **Ala., Auburn**—AUDITORIUM, etc.—Alabama Polytechnic Institute, Auburn, auditorium and sports arena, $1,500,000; library, $1,750,000; sewage treatment and disposal plant, $300,000; agriculture teaching and research bldg., $600,000; chemistry bldg annex, $560,000. classroom bldg. $500,000; central heating plant, $250,000 home economics bldg., $500,000; dramatic arts bldg. annex, $125,000; military bldg. for ROTC, $500,000. bldg. and grounds storage annex, $50,000. incinerator for Veterinary School $50,000. large animal clinic bldg., $300,000. engineer laboratory bldg., $300.000. women's dormitory $576,000; men's dormitories, $918,000; administration bldg, $317,000. physical education bldg., $900,000. other smaller bldgs., $242,350. agronomy, soils, horticulture bldgs., $750,000; botany and plant path. bldg., $600,000; dairy & poultry bldg., $375,000. farm animal disease research bldg., $200,000; judging pavilion, abattoir & meats laboratory, $200,000; 2 sub-station auditorium $70,000; renovation of two bldgs. $100,000; greenhouses, $150,000; large animal clinic bldg., $300,000; incinerator, $50,000; other renovations to existing bldgs., wiring, air-conditioning $132,600. CD 2/27/45.

▲ **Calif., Covina**—SCHOOLS—Covina Union High School District, Covina, voted $3,700,000 bonds, schools. CD 3/23.

▲ **Calif., San Diego**—COURT HOUSE—San Diego Co., 1600 Pacific Hy., plans by Sam Hamill, Scripps Bldg., Frank Hope, 1447 6 St., George Lykos, Spreckles Bldg., and R. G. Wheeler, 2507 4 St., all San Diego, county court house. $7,000,000. E. L. Freeland, Spreckles Bldg., consult. engr. CD 11/8.

▲ **Colo., Denver**—CITY AUDITORIUM—City and Denver Co., City and County Bldg., bond election May 17, city auditorium $2,000,000. Stanley E. Morse, 1050 Cherokee St., Denver, Colo., consult. engr. CD 12/8.

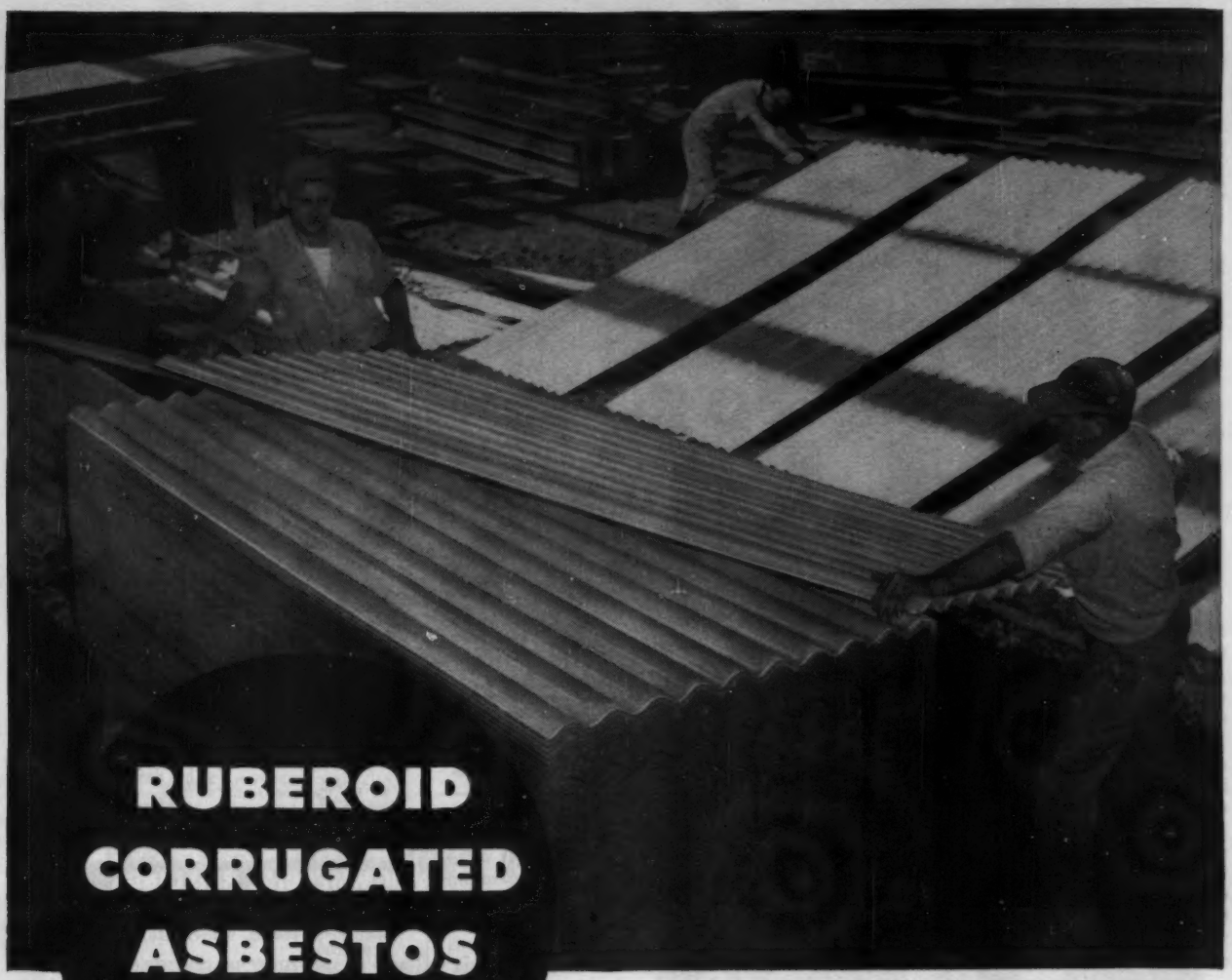
▲ **D. C., Wash.**—RECEIVING HOME—D. C. Govt. 499 Pa. Ave. N.W., receiving home at Blue Plaines, $1,200,000. CD 9/16/43.

▲ **Ky., Lexington**—APARTMENTS—University of Ky., S. Lime St., plans by Thos Page Edwards Assoc., 148 Barr St., 178 apartment proj., 13 bldgs., $1,500,000. CD 10/2/51.

▲ **Mich., Eloise**—HOSPITAL—Bd. Supervs., Wayne Co., 3800 Cadillac Tower, Detroit, voted bonds Apr. 4, general hospital, $10,000,000. CD 3/4.

▲ **Mo., Columbia**—POWER PLANT—City, voted $2,500,000 bonds Apr. 5, power plant expansion. Lutz & May, Finance Bldg., Kansas City, Mo., consult. engrs. CD 9/24/53.

(Continued on page 100)



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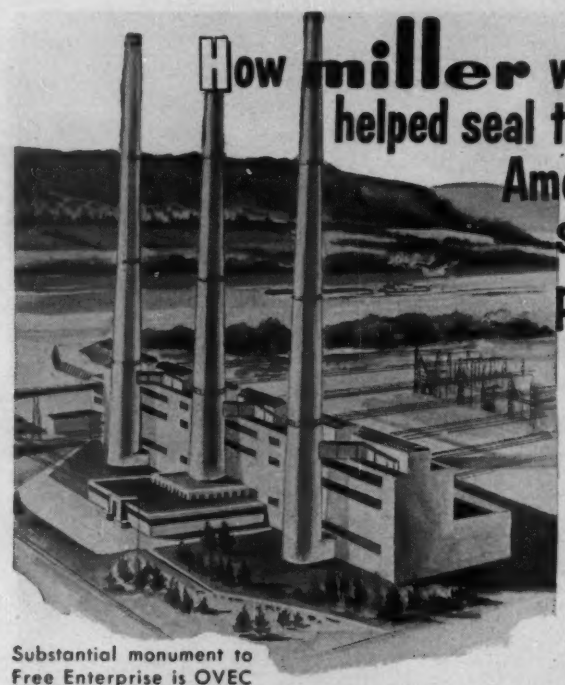

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MINNEAPOLIS
NEW YORK CITY — SALT LAKE CITY

(Continued from page 98)

▲ Mo., Joplin — SCHOOL — Joplin School Dist. Bd. Educ., Rol S. Wood, supt. Schools, voted $2,050,000 bonds Apr. 5, Senior High School on 32 acre tract in east central area of district. Peterson & Scharhag, 1103 E. Armour St., Kansas City, Mo., archts. CD 2/23.

▲ Neb., Omaha—OFFICE—Metropolitan Utilities District, 18th and Harney Sts., office. $1,525,000.

▲ N. Y., Brooklyn—SCHOOL—Bd. Educ., Bureau Constr., 42-15 Crescent St., Long Island City, plans by M. L. Radoslovitch, c/o owner, 3 story P. S. 272, 10102-10193 Seaview Ave. $1,140,000. CD 1/20.

▲ N. Y., New Hyde Park—SCHOOL—Union Free School Dist. No. 9, Town of North Hempstead, New Hyde Park, elementary school, Denton Ave., $856,800; Herrick School addn. to convert to Junior High School, $872,900; Wickshire Elementary School addn. $325,350-$350,000; plans by Warren H. Ashley, 967 Farmington Ave., West Hartford, Conn., Senior High School, $1,861,100; Center Street Elementary School, $647,000; Searington Elemetary School addn., Albertson, $344,500; Hubbard, Lawless & Blakely, 110 Whitney Ave., New Haven, Conn., mech. engrs. on all schools.

▲ O., Euclid—SCHOOLS—Bd. Educ., 23131 Lakeshore Blvd., plans by Fulton, Krinsky & DelaMotte, 6014 Euclid Ave., Cleveland, Junior High School, Elinore Ave., $1,650,000; 20 room addn., automotive shop and student center to Euclid High School, $750,000; elementary school, Lloyd Rd. and Lake Shore Blvd., $725,000; elementary school in Indian Hill area south of Euclid Ave. $450,000; administration bldg., $400,000.

▲ O., Willoughby—HIGH SCHOOL— Willoughby—Eastlake Bd. Educ., Willoughby, plans by Outcalt Guenther & Assocs., 13124 Shaker Square, Cleveland, high school, Stevens Blvd., Eastlake. $3,650,000. CD 11/10/53.

▲ Pa., Upper Darby—HIGH SCHOOL—Upper Darby Bd. Educ., Lansdowne Ave. and School Lane, plans by The Ballinger Co., 121 N. Broad St., Phila., Junior High School. $2,500,000. CD 3/28/52.

▲ Tex., Garland—POWER PLANT EXPANSION, etc.—City, H. A. Walker, mayor, power plant expansion and imprvs. $1,900,000. CD 2/26/53.

▲ Wash., Bellingham—SCIENCE—Western Washington College of Education, Bellingham, plans by Jones & Bindon, Hoge Bldg., Seattle, Zone 4, science bldg. $1,250,000. CD 12/28.

▲ Wyo., Cheyenne — CIVIC AUDITORIUM — City, City Hall, civic auditorium, $1,000,000.

▲ B. C., Vancouver—ACUTE UNIT—Vancouver General Hospital, 10 and Heather Sts., plans by Townley & Matheson, 1376 Hornby St., 540-bed acute unit, Vancouver General Hospital. $8,000,000. CD 8/29/47.

COMMERCIAL BUILDINGS

▲ Ariz., Tucson—OFFICE—Lawrence D. Mayer, Mayer-Heard Bldg., Phoenix, 9 story, 110,000 sq. ft. office, $2,000,000.

▲ Calif., Lodi—SHOPPING CENTER—Hugh B. Codding, 1800 S. Sacramento St., Lodi, shopping center, $4,000,000.

▲ Colo., Grand Junction—OFFICE—Robert Howard, c/o Flatow & Moore, archts., 1840 Lomas Blvd. N. E., Albuquerque, N. M., 11 story office, $2,000,000.

▲ Del., Wilmington—OFFICE—Owner, c/o George T. Weymouth & Nicholas Du Pont, Delaware Trust Bldg., plans by M. O. Nathan, 343 S. Dearborn Ave., Chicago, Ill., office bldg., 10 St. between Shipley and Orange Sts. $4,000,000.

▲ D. C., Wash.—SHOPPING CENTER—Chevy Chase Land Co., Union Trust Bldg., shopping center, Connecticut Ave. between Van Ness and Yuma Sts. N.W. $12,000,000.

▲ Ill., Chicago—COMMERCIAL, etc.—Harold L. Perlman, 1000 Lake Shore Dr., plans by Sidney H. Morris, 134 N. La Salle St., Zone 2, 4 story commercial bldg. and stores, Lake Shore Dr. and Oak St. $1,500,000.

▲ La., New Orleans—SUPERMARKET and OFFICE—John Schwegman, Jr., 900 S. Jefferson Davis Parkway, plans by Edward M. Y. Tssi, Humble Bldg., 900 S. Jefferson Davis Parkway, 3 story, 350x570 ft., concrete supermarket and office Old Gentilly and Burman Rds. $1,500,000.

▲ Mass., Cambridge—LABORATORY—Massachusetts Institute Technology, 77 Massachusetts Ave., plans by Skidmore, Owings & Merrill, 575 Madison Ave., New York, N. Y. Karl Taylor Compton Laboratory, west of swimming pool $2,000,000. Severad Eistad Krueger, 415 Lexington Ave., New York, N. Y., consult. engrs. CD 6/16.

▲ Mass., Pembroke—SHOPPING CENTER—Paul F. Cotty, 10 Sheila Rd., plans by Ralph Lee Rankin, Pinecrest Ave., brick veneer on cinder block shopping center, $2,000,000.

▲ N. Y., New York—OFFICE—399 Park Ave. Corp., c/o Joseph P. Blitz, 150 E. 39 St., Zone 16, 35 story office, Park Ave. from 53 to 54 Sts. $30,000,000.

▲ N. C., Morehead City—HOTEL—Morehead Hotel, Inc., Ted Dairs, c/o Chamber of Commerce, Morehead City, 400-room hotel. $4,500,000.

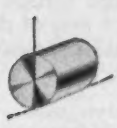
▲ N. D., Fargo—OFFICE—Gate City Building & Loan Assn., 73 Broadway, plans Bank Building & Equipment Corp. of America, 906 Sidney St., St. Louis, Mo., office. $1,500,000.

▲ O., Akron—BANK—Firestone Bank, E. A. Oberlin, Jr., pres., 1115 S. Main St., plans by Bank Building & Equipment Corp. of America, 906 Sidney St., St. Louis Mo., 3 story bank, on site of present bank. $1,000,000.

▲ O., Toledo—HOSPITAL—Sisters of Mercy, Sister Mary Blanche, adm., Mercy Hospital, 2221 Madison St.,

(Continued on page 103)

right from every angle . . .



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UNITED STATES STEEL

(Continued from page 100)

plans by Robert J. Reiley, Jr., Paramount Bldg., 6 story, 44x165 ft. hospital addn. on site of St. Mary's Hall; 6 story 162x180 ft. L-shaped school of nursing, Jefferson and 23 Sts., with covered passageway to hospital, imprv. facilities in present bldg., etc. $2,500,000.

▲ **Pa., Glenside**—APARTMENT—Owner c/o G. Harold Murphy, 6121 Sellers St., Phila., 306-unit apartment, Easton Rd. and Church Rd. $3,000,000.

▲ **Pa., Phila.**—MEDICAL SCHOOL—Womens Medical College of Pennsylvania, Henry Ave. and Abbottsford Rd., plans by Schmidt, Garden & Erikson, 104 S. Michigan Ave., Cchicago, Ill., medical school bldg. with auditorium and library; present bldgs. alterations, nurses home addn. $4,000,000.

▲ **Tex., Abilene**—HOUSING—U. S. Air Force Base, Procurement Office, Carswell Air Force Base, Fort Worth, plans by Associated Architects & Engineers, (David S. Castle Co., Abilene; F. C. Olds Co., Abilene, C. A. Johnson, 3501 Buffalo Dr., Houston, archts. and Leonard E. Kamto, N. P. Anderson Bldg., Fort Worth, engr.) construct, manage and finance, 500 unit, 1 story brick veneer on wood housing, concrete slab. $5,000,000.

▲ **Tex., Beaumont**—SHOPPING CENTER—Beaumont Village Co., c/o G. H. MacNaughton, trustee, Beaumont, plans by Eugene Werlin & C. H. Kiefner, 3501 Buffalo Dr., Houston, 1 story, 165,000 sq. ft., masonry shopping center to be called "Beaumont Village," 21-acre tract Voth Road and Lucas Dr. $1,150,000.

▲ **Tex., Fort Hood**—HOUSING—U. S. Eng., Box 1600, Fort Worth, plans by Charles E. Armstrong, 5351 Camp Bowie Blvd., Fort Worth, construct, manage, finance, 625 single and duplex apartment units, 1 story, brick veneer on wood frame, concrete slab. $6,250,000.

▲ **Tex., Houston**—STORES—Sakowitz Brothers, 1111 Main St., 80,000 sq. ft. stone, white masonry retail store on Post Oak at Westheimer Rd., $3,000,000; 2-level, 62,000 sq. ft. masonry suburban retail store in Gulfgate Area, $2,500,000; expansion of existing Main St. downtown store, masonry constr. $1,000,000.

▲ **Ont., Toronto**—SHOPPING CENTER—Applewood Shopping Centre Ltd., 1177 Queen Elizabeth Way, Port Credit, plans by Hanks & Irwin Ltd., 2848 Bloor St. W., 2 story, 100x700 ft., 168 ft. deep shopping center, incl. 25 stores and offices above, Second Line near Queen Elizabeth Way. Over $1,000,000.

▲ **Ont., Toronto**—HEAD OFFICE—Ford Motor Co. of Canada Ltd., 120 Bloor St. E., head office, $8,600,000.

▲ **Que., Montreal**—OFFICE—Terminal Centre Corp., 1637 Sherbrooke St. W., plans by Greenspoon, Freedlander & Dunne, 4151 Sherbrooke St. W. substructure for 13 story office, University and Lagauchetiere Sts. on Canadian National Ry. property, $1,500,000.

INDUSTRIAL BUILDINGS

▲ **Ga., Atlanta**—PLANT—Scripto, Inc., 423 Houston St. N.E., plant on 33-acre tract northwest of Piedmont Rd. and Southern Ry. underpass $1,500,000.

▲ **Ga., Macon**—PLANT—Armstrong Cork Co., Liberty and Charlotte Sts., Lancaster, Pa., 21,000 sq. ft. plant addn. $2,000,000.

▲ **Ia., Iowa City**—PLANT—Procter & Gamble Co., Gwynne Bldg., Cincinnati, branch plant. $6,000,000.

▲ **Massachusetts**—POWER PLANT—Yankee Atomic Electric Co., William Webster, pres., 441 Stuart St., Boston, approx. 100,000 kilowatts atomic power plant, western part, $30,000,000. CD 4/6.

▲ **Mont., Butte**—FOOD DISTRIBUTION CENTER—Safeway Stores, Inc., Mayer Bldg., food distribution center, incl. grocery warehouse, meat warehouse, perishable goods warehouse, truck repair shop, loading equip. on 43 acre tract. $4,000,000.

▲ **N. Y., Astoria**—GENERATOR—Consolidated Edison Co., 4 Irving Pl., New York, N. Y., 300,000 kw. generator for addn. to Astoria plant, $60,000,000.

▲ **Tex., Athens**—PLANT—Olive-Myers-Spalti Mfg. Co., 2220 Young St., Dallas, 1 story ultra-modern brick, steel, windowless furniture mfg. plant, $2,250,000; products warehousing, $245,000. Giffels & Vallet, Inc., 3518 Polk St., Houston, and L. Rossetti, 1000 Marquette Bldg., Detroit, Mich., engrs. CD 8/24.

▲ **Tex., Lufkin**—FOUNDRY—Texas Foundries, Inc., Lufkin, steel foundry expansion $1,000,000; warehousing or storage for foundry products, $100,000.

▲ **Wash., Tacoma**—PLANT—St. Regis Paper Co., 230 Park Ave., New York, N. Y., kraft paper and board plant, $20,000,000.

▲ **Ont., Havelock**—MINING DEVELOPMENT—Canadian Flint & Spar Co., Ltd., 140 Wellington St., Ottawa, mining development, housing development for employees, $1,500,000.

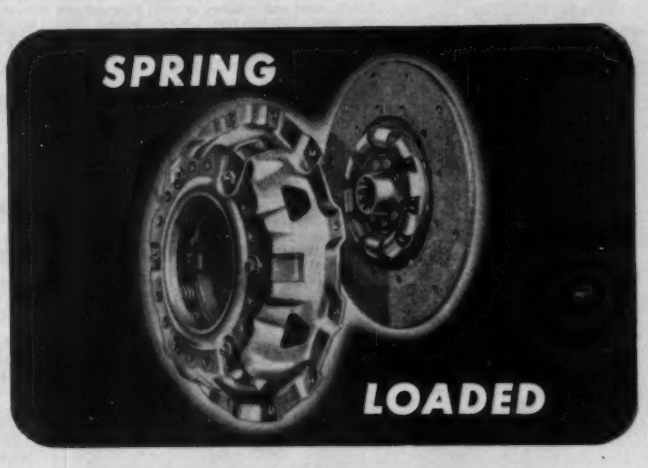
▲ **Que., Oka**—MINING DEVELOPMENT—Molybdenum Corp. of America, 500 5th Ave., New York, N. Y., USA. mining development near here, 45 mi. northwest of Montreal, 8,000-acre site, $3,000,000.

UNCLASSIFIED

▲ **Colo., Denver**—PARKS, etc.—City and Denver Co., City and County Bldg., bond election May 17, expanding, extending, imprv. developing public parks system and recreational facilities, $2,000,000. Dewey Wright, city engr. CD 6/22/53.

▲ **Texas**—GAS MAINS, etc.—Wilcox Trend Gathering System, Inc., c/o Harry W. Bass, Mercantile Commerce Bldg., Dallas, 16 mi. large gas main, $480,000; 2,000 hp. compressor station and lines, $1,000,000; 2,200 hp. compressor station to existing lines, $1,220,000; 75 hp. field compressor and lines, $200,000, all above work at Lehar Co. (near Cuevo).

ROCKFORD



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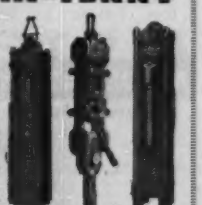

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

STATE HIGHWAY LETTINGS

BRIDGES

May 4, Maine & New Brunswick

STREETS AND ROADS

May 6, Vermont

† **Rhode Island**—AAA FACILITIES—BA 5/6—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., Special AAA facilities, North Kingston, ENG-19-016-55-106. $900,000. Plans deposit $50. Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., engrs. CD 11/15.

▲ **MASSACHUSETTS**—BA 5/10—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
Hopkinson, Westboro, Southboro, Ashland and Framingham—Contr. 51-093 hy. and bridge constr. $3,000,000. Plans deposit $10, The Clarkeson Engineers Co., Inc., 285 Columbus Ave., Boston, section engr., Howard, Needles, Tammen & Bergendoff, 80 Boylston St., Boston, engrs. CD 8/11.

BIDS ASKED—BUILDINGS

▲ **Mass., Lowell**—HOUSING—BA 5/18—Lowell Housing Auth., 18 Market St., Bishop Markham Village Housing, 372 units, heating, ventilating, plumbing and electric included, $3,000,000. Plans deposit $100, refundable, Korkyn & Browne, 184 Boylston St., Boston, archts. CD 8/17/54, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. R. Cianchette**, 120 S. Main St., Pittsfield, Me. CA $2,269,931, est. $2,500,000. airfield pavements exten. Loring Air Force Base, ENG-19-016-55-63, LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 3/22, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Gil Wyner, Inc., 12 Newland St., Malden, Mass. and **Grande & Sons, Inc.**, 425A Broadway, Everett, Mass. (joint venture). CA $3,335,857, est. $4,000,000. Contr. 3 Northeast Expressway easterly connection to Revere Beach and Orange St., Chelsea and Revere. CD 4/1, under LB.

† **Cefalo & Sons Co.**, 42 Bennett St., W. Lynn Mass. LB $823,343, est. $900,000. AAA facilities, Boston Defense area, ENG-19-016-55-112, MASSACHUSETTS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Apr. 18. CD 4/11.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Vermont Structural Steel Co.**, 207 Farmington Ave., Burlington, Vt., CA Est. $1,000,000. superstructure MFG. BLDG., RUTLAND, VT. Tampax, Inc., 161 E. 42 St., New York, N. Y. CD 12/16, under CA.

McCutcheon Co., 250 Stuart St., Boston, Mass. CA Approx. $850,000. GRADUATE LIVING CENTER, CAMBRIDGE, MASS. Radcliffe College, 10 Garden St., Cambridge, Mass. Bids Apr. 4. CD 3/20.

Andrew Wilson Co., 616 Essex St., Lawrence, Mass. rejected bids Apr. 1. factory addn., near Melrose and Water Sts., LAWRENCE, MASS. LB $125,983. Will re-advertise. CD 4/5, under LB.

Town of Barrington, Supt. Schools, Maple Ave., Barrington, R. I. rejected bids Mar. 30, Hampden Meadows Elementary SCHOOL, BARRINGTON, R. I. LB $414,931, est. $360,000. Michael Troficante, 175 Taunton Ave., East Providence, R. I., archt. New bids Apr. 20. CD 4/6, under LB.

▲ **Bonwit Constr. Co.**, 370 Lexington Ave., New York, N. Y., CA, $1,500,000, two APARTMENTS, 76 families, South Lafayette Pl., GREENWICH, CONN. 50 Lafayette Corp., c/o general contractor. S. J. Kessley & Son, 551 5th Ave., New York, N. Y., archts.

Thomas J. Riordan, Hoyt St., Norwalk, Conn., CA, $795,400, Junior High SCHOOL, West Rocks Area, NORWALK, CONN. City, Supt. Schools, Norwalk, Conn. Bids Mar. 22. CD 3/28, under LB.

F. W. Brown Co., Yantic Flats, Conn., CA, $601,124. East Great Plain Elementary SCHOOL, New London Pike, NORWICH, CONN. City, City Hall, Norwich, Conn. Bids Apr. 12. CD 4/18, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

May 3,. Maryland May 13, Pennsylvania

STREETS AND ROADS

May 13, Pennsylvania

▲† **Md., Andrews Air Force Base**—HOSPITAL—BA 6/1—U.S. Eng., First and Douglas Sts. N.W., Wash. 25, D.C., 25-500 bed hospital, ENG-49-080-55-46-(43), $5,000,000. Plans deposit $100. CD 4/6.

BIDS ASKED—BUILDINGS

▲ **Pa., Aliquippa**—HOSPITAL—BA 5/10—Aliquippa Hospital, 384 Franklin Ave., 3½ story, brick, tile, steel hospital. $2,000,000. Michael Baker & Joseph Bontempo, Rochester, archts. Eggers & Higgins, 100 E. 42 St., New York, N. Y., archts. design. CD 1/24/52.

▲ **N. Y., Buffalo**—HOUSING—BA 5/11—Buffalo Municipal Housing Auth., City Hall, Zone 2, constr. six 7 story apartments for Kensington Heights (Proj. NYS 61-C), steel and masonry constr., Fillmore and Kensington Aves. $3,000,000. Plans deposit $75. Milton Milstein, 730 Prudential Bldg., archt. CD 3/27/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Ardsley Constr. Co., Inc.**, 285 Madison Ave., New York 17, N. Y., LB $1,123,262, Contr. LT-160.026, New Jersey Ventilation Bldg. for the Third Tube of Lincoln Tunnel, NEW YORK-NEW JERSEY. The Port of New York Auth., 111 8th Ave., New York 11, N. Y. Bids Apr. 19. CD 3/11.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,
Franklin Contg. Co., 12 Central Ave., Newark, N. J., LB, $3,357,144, Contract PE-4, 9 bridge structures, extending an existing bridge, constr. box culvert in connection with Pennsylvania Exten. of N. J. Turnpike, Burlington Co. Bids Apr. 20. CD 3/29.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,
Kingston Bituminous Products Co., Kingston, N. J., LB $2,585,614. Contract PE-5, roadway pavements, shoulders, guard rails, right-of-way fencing, pavement marking, side-of-rod delineators topsoiling and seeding for Penna. extension N. J. Turnpike, Burlington Co. Bids Apr. 20. Bids Apr. 8.

Allen N. Spooner & Sons, 143 Liberty St., New York 6, N. Y., LB, $929,929. rehabilitation and widening substructure of Pier No. 3, Hoboken-Port Authority Piers, Contract HP 120.007, HOBOKEN, N. J. The Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Apr. 19. CD 3/21.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,
Pa.—D. E. Smith, Inc., Mifflintown, Pa., LB $675,715, 45,167 ft. crushed aggregate base with bit. surf. 20 ft. wide, one I-beam and one rein.-con. bridge, T. R. 414, Leroy and Franklin Twps.;
Pa.—Fyock & Reed, R.D. 3, Stoystown, Pa., LB $246,974, widn. 14,085 ft. road with crushed aggregate base variable in width and surf. with bit. surf. T. R. 120, Shippen, Portage and Lumber Twps., Cameron Co.;
Pa.—Hempt Brothers, R.D. 1, Camp Hill, Pa., LB $110,217, 3,600 ft. crushed aggregate base with bit. surf. 24 ft. wide, L. R. 22013 (3), Derry Twp., Dauphin Co.;
Pa.—Trinity Paving Co., 1460 N. 52nd St. Phila. 31, Pa. LB $89,059, 2,396 ft. crushed aggregate base with bit. surf. variable in width, T. R. 320, Marple Twp., Delaware Co.;
Pa.—Bero Constr. Corp., 259 Delaware Ave., Buffalo 2, N. Y. LB $1,171,699, 42,491 ft. rein.-con. road variable in width, divided hy., T.R. 5, North East Twp., Erie Co.;
Pa.—W. L. Dunn Constr. Co., Cochranton, Pa., LB $136,763, widn. and overlay 8,529 ft. roadway with crushed aggregate base and bit. surf. 22 ft. wide, one I-beam bridge, T. R. 6, LeBoeuf Twp., Mill Village Boro Erie Co.;
Pa.—Wagner Constr. Co., 115 S. Wyoming Ave., Kingston, Pa. LB $71,487, widn. 705 ft. both sides existing road with crushed aggregate base and bit. surf. variable in width, T. R. 315, Plains Twp., Laflin Boro, Luzerne Co.; LB $338,978, widening 25,600 ft. existing road with crushed aggregate base and bit. surf. on new and existing pavement, T. R. 309-115, Dallas Boro, Dallas and Monroe Twps., Luzerne and Wyoming Counties. Bids Apr. 15. CD 3/23.

▲ **Verona Constr. Co., Inc.**, 251½ Grove St., Verona, N. J., CA, $919,400, sewerage system;
Consolidated Constr. Co. of N. J., Inc., 28 Cooper St., Woodbury, N. J., CA, $297,624 treatment plant;
McElwee-Courbis Constr. Co., Inc., 503 Market St., Camden, N. J., CA, $146,990. mechanical equipment, PENNS GROVE, N. J. Penns Grove Sewerage Auth., Penns Grove, N. J. Grand total $1,364,014. Bids Apr. 7. CD 3/28.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **William A. Crow Constr. Co.**, 101 Park Ave., New York, N. Y., CA Approx. $2,000,000. 6 story HOSPITAL, ALBANY, N. Y. Albany Memorial Hospital, New Scotland Ave., Albany, N. Y. Bids Mar. 8. CD 2/11.
▲ **Driscoll-Maccia Constr. Co.**, 41 E. 42 St., New York 17, N. Y., CA $13,977,430, general constr.;
Jarcho Bros., Inc., 38-18 33 St., Long Island City, N. Y., CA $1,343,977, heating and ventilating;
Nager Elec. Co., Inc., 426 Broadway, Brooklyn 11, N. Y. CA $1,088,000, electrical work;
Far Plumbing Co., 2018 Crotona Parkway, New York 60, N. Y., CA $1,375,000, plumbing for Marlboro HOUSES, Proj. NYS-64-2, in area bounded by W. 11 St., Avenue W, Stillwell Ave., Avenue V, 86 St., W. 8th St., Avenue X BROOKLYN, N. Y. Grand total $17,784,407. New York City Housing Auth., 299 Broadway, New York 7, N. Y. Bids Mar. 1. CD 3/3 under LB.
A. A. La Fountain, Inc., 161 Beech St., Hackensack, N. J. CA $952,185, HIGH SCHOOL, on 28-acre tract, on Herbertsville Rd., FREEHOLD, N. J. Regional Bd. Educ., Freehold, N. J. Bids Mar. 15. CD 3/22, under LB.
▲ **Terminal Constr. Corp.**, State Hy. 17, Wood-Ridge, N. J., LB $2,588,645, general contract;
Frank A. McBride, Co., 75 Spring St., Paterson, N. J., LB $488,362, heating and ventilating work;
Ernest Jarvis & Co., 236 Chestnut St., Newark, N. J., LB $359,619 electrical work, for Hudson County ADMINISTRATION BLDG., JERSEY CITY, N. J. Bd. Freeholders Hudson Co., Court House, Newark Ave., Jersey City, N. J. Bids Apr. 14. CD 3/8.

▲ **Samuel Schafran Assoc.**, c/o Maxfield Blaufeux, archt., 44 Court St., Brooklyn, N. Y. Owner Builds, $1,000,000. Mahwah SHOPPING CENTER, 30-acre tract north of Ramsey Traffic Circle, MAHWAH, N. J.

▲ **A. A. La Fountain Inc.**, 1745 Nolden Ave., Trenton, N. J. CA $1,059,270. HIGH SCHOOL, PRINCETON, N. J. Bd. Educ., Moore St., Princeton, N. J. Bids Apr. 5. CD 4/12, under LB.

▲ **Graziano Constr. Co.**, 7321 Frankstown Ave., Pittsburgh, Pa., CA $2,143,300. 2 story brick, block Junior HIGH SCHOOL, Peach and Cherry Sts., ERIE, PA. School Dist. of Erie, South Park Row and French St., Erie, Pa. Bids Mar. 23. CD 4/14.

Landau Bros. Building Co., 125 First Ave., Pittsburgh, Pa., CA Est. $500,000. 3 story brick, block, steel frame RELIGIOUS EDUCATION BLDG. addn., MOUNT LEBANON, PA. Mount Lebanon Presbyterian Church, Washington Rd., Mount Lebanon, Pittsburgh, Pa. Robert Schmertz, 1156 Century Bldg., Pittsburgh, Pa., archt. CD 11/29/48.

▲ **Warwick Building Co.**, 5 N. Guilford Ave., Baltimore 2, Md. CA $1,450,000. 145 asbestos shingle HOMES, Westbury Rd., Malbay Court, Hedgewood Rd., Warwick Dr., Orchard Hills Section, BALTIMORE, MD. Edmondale Building Co., 5 N. Guilford Ave., Baltimore 2, Md.

Wm. P. Lipscomb Co. Inc., Washington Bldg., Wash., D. C., CA, $642,965, 3 story OFFICE, 15 St., Massachusetts Ave. and Scott Circle, WASH., D. C. American Association for the Advancement of Science, 1515 Mass. Ave. NW., Wash., D. C. Bids Mar. 17, awarded Apr. 15. CD 3/25, under LB.

SOUTH

BIDS ASKED—BUILDINGS

▲ **Tenn., Nashville**—HOSPITAL BLDG.—BA 5/12—State of Tennessee, State Capitol, 5 story central sect., two 4 story wings on each end, receiving and active treatment bldg., at Central State Hospital. $2,000,000. CD 4/4.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Darin & Armstrong, Inc.**, 2041 Fenkel Bldg., Detroit, Mich., CA. 358,200 sq. ft. main PLANT structure; 400,000 sq. ft. paving for roads, parking areas, sidewalks and pedestrian underpass; and laying 4,500 ft. of railroad tracks at plant, near RAVENSWOOD, W. VA. Kaiser Aluminum & Chemical Corp., Kaiser Bldg., 1924 Broadway, Oakland 12, Calif. Bids Apr. 8. CD 3/30.

▲† **Ray M. Lee Const. Co.**, 1004 Edgewood Ave., N. E., Atlanta, Ga. CA $5,827,956, 500-bed HOSPITAL, ENG-31-075-55-39, FORT BRAGG, N. C. U. S. Eng., 308 Custom House, Wilmington, N. C. Bids Apr. 7, awarded Apr. 8. CD 3/8.

▲ **Culpepper & Edwards**, Pelham, Ga., LB, $1,380,977, Reedy Creek Elementary SCHOOL; Okapilco elementary SCHOOL addn., mechanical remodeling; Berlin elementary SCHOOL addn. and mechanical remodeling; Doerun Elementary and HIGH SCHOOL addn. and Doerun shop; Funston Elementary SCHOOL; Doerun Colored Elementary SCHOOL, Charles A. Grey Elementary SCHOOL, Norman Park Elementary and High SCHOOL addn., mechanical remodeling of Norman Park Elementary and High SCHOOL, Hamilton Elementary SCHOOL, MOULTRIE, GA. State School Bldg. Auth., 41 Exchange Pl. S.E., Atlanta, Ga. Bids Apr. 14. CD 3/10.

Walters Constr. Co., Ellijay, Ga., CA, $810,615. Ringgold Elementary SCHOOL (white); Lakeview High SCHOOL; Boynton Elementary SCHOOL; Ringgold High SCHOOL; Westside Elementary SCHOOL; Ringgold Negro Elementary SCHOOL, RINGGOLD, GA. State School Bldg. Auth., 41 Exchange Pl. S. E., Atlanta, Ga. Bids Mar. 22, awarded Apr. 14. CD 3/28, under LB.

Richardson Constr. Co., 645 N. W. 7 Ave. (P. O. Box 1661), Fort Lauderdale, Fla., CA, $500,000. 5 story professional OFFICE, FORT LAUDERDALE, FLA. The Professional Building Corp., c/o contractor. Gamble, Pownall & Gilroy, 1407 E. Las Olas Blvd., Fort Lauderdale, Fla., archts.

Stivers Bros., 341 E. Fourth St., Frankfort, Ky. CA $507,490. AUDITORIUM-GYMNASIUM and COMMUNITY BLDG., FRANKFORT, KY. City, Frankfort, Ky. Bids Mar. 24, awarded Apr. 4. (Correction-contractor). CD 4/5, under CA.

▲ **Construction Management, Inc.**, 1542 W. Washington St., Indianapolis, Ind. CA Est. $9,000,000. 38,000 sq. ft. steel casket mfg. PLANT, 1 story, 40,000 sq. ft. OFFICE, HENDERSON, KY. Funeral Directors Mfg. & Supply Co., Inc., 1057 Cherokee Rd., Louisville, Ky.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

May 3, Michigan May 10, Wisconsin

STREETS AND ROADS

May 10, Wisconsin May 24, Ohio

BIDS ASKED—BUILDINGS

▲ **O., Toledo**—HOSPITAL—BA 5/11—Toledo Hospital, North Cove Blvd., hospital addn. at site. $3,000,000. Ellerbe & Co., E. 505 First Natl. Bank Bldg., St. Paul, Minn., archts. Bellman, Gillette & Richards, 518 Jefferson Ave., assoc. archts. CD 2/10/54.

(Continued on page 106)

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Chrysler Industrial V-8 Engines are the best power you can install

Chrysler Industrial V-8 Engines are . . . pound for pound . . . the world's most powerful gasoline industrial engines.

To prove that statement—let's look at the facts. In the charts below, we compare Chrysler Ind. 24A V-8 Engine with similarly equipped products of five principal competitors. Information on each competitive engine is based upon factory specifications. Check the Chrysler advantages—each of them is an important factor in the selection of a power plant.

Engine	Horsepower and Piston Displacement	Pounds per Horsepower	Fuel Consumption—pounds per BHP per hour	Horsepower per Cubic Inch Displacement	
Engine A	110 at 2200 RPM 358 cu. in.	(Stripped Engine) 7.38	.54	.307	**CHRYSLER ADVANTAGES OVER ENGINE A** . . . delivers 18 more horsepower . . . weighs 96 pounds less with 24% less weight per horsepower . . . uses 7.5% less fuel at average operating speed . . . delivers 26% more horsepower per cubic inch displacement
Chrysler Model Ind. 24A	128 at 2200 RPM 331 cu. in.	(Stripped Engine) 5.58	.50	.387	
Engine B	104 at 2400 RPM* 330 cu. in.	(Stripped Engine) 6.92	(Information not available)	.315	**CHRYSLER ADVANTAGES OVER ENGINE B** . . . delivers 34 more horsepower . . . weighs 5 pounds less with 25% less weight per horsepower . . . delivers 32% more horsepower per cubic inch displacement
Chrysler Model Ind. 24A	138 at 2400 RPM 331 cu. in.	(Stripped Engine) 5.18	.50	.416	
Engine C	99 at 2200 RPM 320 cu. in.	(Stripped Engine) 7.64	.56	.309	**CHRYSLER ADVANTAGES OVER ENGINE C** . . . delivers 29 more horsepower . . . weighs 60 pounds less with 27% less weight per horsepower . . . uses 10.5% less fuel at average operating speed . . . delivers 25% more horsepower per cubic inch displacement
Chrysler Model Ind. 24A	128 at 2200 RPM 331 cu. in.	(Stripped Engine) 5.58	.50	.387	
Engine D	117 at 2200 RPM 317 cu. in.	6.5**	.50	.369	**CHRYSLER ADVANTAGES OVER ENGINE D** . . . delivers 11 more horsepower . . . weighs 19 pounds more *but* with 6% less weight per horsepower . . . delivers 5% more horsepower per cubic inch displacement
Chrysler Model Ind. 24A	128 at 2200 RPM 331 cu. in.	6.1**	.50	.387	
Engine E	97 at 2200 RPM 372 cu. in.	(Complete Engine) 12.85	.58	.260	**CHRYSLER ADVANTAGES OVER ENGINE E** . . . delivers 31 more horsepower . . . weighs 395 pounds less with 48.7% less weight per horsepower . . . uses 14% less fuel at average operating speed . . . delivers 49% more horsepower per cubic inch displacement
Chrysler Model Ind. 24A	128 at 2200 RPM 331 cu. in.	(Complete Engine) 6.6	.50	.387	

**Information not available at 2200 RPM* ***Complete engine less flywheel housing*

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ENGINES

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BETTER THAN THE BEST BUT PRICED WITH THE LOWEST

(Continued from page 104)

▲ **Ill., Chicago**—HOUSING—BA 5/17—Chicago Housing Auth., 608 S. Dearborn St., Chicago, six apartments, Incl. 1,184 units and boiler house, 35 and State Sts. $15,000,000. Holabird, Root & Burgee, 180 N. Wabash St., Zone 1, archts. CD 7/9.

SOON LETS CONTRACT—BUILDINGS

▲ **Mich., Sterling**—PLANT—Ford Motor Co., 3000 Schaefer St., Dearborn, soon lets contract site preparation underground services only, for Ford chassis parts plant, 17 Mile and Mound Rd. $25,000,000. Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, engr.-archt. CD 2/16.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis, Zone 4,

Peter Kiewit Sons Co., & Condon Cunningham Co., 15806 Lorain Ave., Cleveland, O., LB $5,209,159. Contract No. 6, dual highway and bridges East Chicago to Hammond, Indiana East-West Toll Road. Bids Apr. 13. Richardson, Morehouse, Ramsey & Fisher, 401 Liberty Ave., Pittsburgh, Pa., engrs. CD 2/7.

▲ **INDIANA**—Indiana Toll Road Comn., 309 W. Washington St., Indianapolis.

W. E. O'Neil Constr. Co., 2751 N. Clybourn St., Chicago, Ill., CA, $5,486,858. Contract 3/4, grading, drainage, structures, rein.-con. paving 1 mi. Indiana East-West Toll Road, City of Hammond, Lake Co. Bids Apr. 6, awarded Apr. 14. CD 4/8, under LB.

▲ **ILLINOIS**—State Div. Hys., Springfield,

Ill.—J. M. Corbett & Co., 2501 Salt St., Chicago 8, Ill., CA, $1,731,080, c. conc. 0.58 mi. F.A. 131 (Congress St. Expressway) from Racine Ave. to Halsted, Chicago, Cook Co.;

Ill.—O'Connor Constr. Co., 320 Reisch Bldg., Springfield, Ill., CA $1,629,945, c. conc. 10.94 mi. U.S. 40 Clark Co. Bids Apr. 1, awarded Apr. 19. CD 4/6, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Gabay Development Co.,** 2679½ E. Main St., Columbus, O. Owner Builds. $3,000,000. 145 HOMES on site of Berwick Golf Course, COLUMBUS, O.

Repp & Mundt Constr. Co., Columbus, Ind., CA, $853,311, GRADE SCHOOL, LINTON, IND. School Bd., Linton, Ind., and Atockton Twp., Linton, Ind.

▲ **Joseph J. Duffy,** 4994 Elston St., Chicago, Ill., CA, $5,317,829, Dunbar Vocational and Trade SCHOOL, 3807 W. 111 St., CHICAGO, ILL. Bd. Educ. 228 N. La Salle St., Chicago 1, Ill. Bids Apr. 1, awarded Apr. 12. CD 4/12, under LB.

▲ **Met Bldg. Corp.,** 3822 W. 63 St., Chicago, Ill. Own Forces. $15,000,000. 1,000 HOMES area of Pulaski Rd. and 83 St., CHICAGO, ILL. M. J. McCarthy, 6201 S. Washtenaw St., Chicago, Ill., archt.

▲ **Welso Constr. Co.,** 2448 W. Fletcher St., Chicago, Ill., CA, $1,000,000. APARTMENT HOTEL, 5538 South Lake Shore Dr., CHICAGO, ILL. Owner c/o A. Epstein & Sons Co., archt., 2011 Pershing Rd., Chicago, Ill. Bids Mar. 28. CD 3/16.

▲ **Leonard E. Cooper,** 6283 Archer Ave., Chicago, Ill., Own Forces. $1,200,000, 100 HOMES, LANSING, ILL. John Bartolomeo, 10834 S. Western St., Chicago, Ill., archt.

▲ **J. Emil Anderson & Son Co.,** 1809 Balmoral St., Chicago 40, Ill., CA, $2,000,000. piano mfg. FACTORY, MELROSE PARK, ILL. W. W. Kimball, 31 E. Jackson St., Chicago, Ill. Arthur M. Heda, 1809 Balmoral St., Chicago 40, Ill., archt. Awarded Apr. 12.

▲ **Murray & Ingle,** 30 E. St. Charles Rd., Villa Park, Ill. Own Forces. $1,400,000. 70 HOMES, near VILLA PARK, ILL.

▲ **Guy Fishman & Mel Wolfson,** 225 E. Ontario St., Chicago, Ill. Own Forces. $6,000,000. 500 HOMES sewers and paving, WHEELING, ILL.

Mercury Builders, 5412 North Ave., Chicago, Ill., CA, $915,931, four SCHOOL addns., LYONS, ILL. School Dist. No. 103, 41 and Joliet Ave., Lyons, Ill. Bids Apr. 5, awarded Apr. 12. CD 4/12, under LB.

▲ **Miller Builders,** 4855 N. Kedzie St., Chicago, Ill., Own Forces, $1,100,000. 50 HOMES, MORTON GROVE, ILL.

▲ **Delgado Constr. Co.,** 1106 W. Central Rd., Mount Prospect, Ill., Own Forces, $1,600,000, 100 HOMES, area of MOUNT PROSPECT, ILL. James Viger, 1000 E. Northwest Hy., Mount Prospect, Ill., archt.

▲ **Delgado Constr. Co.,** 1106 W. Central Rd., Mount Prospect, Ill., Own Forces, $1,600,000. 100 HOMES, WHEELING, ILL. James Viger, 1000 E. Northwest Hy., Mount Prospect, Ill., archt.

Gebhard-Berghammer, Inc., 5420 W. State St., Milwaukee 8, Wis., CA, $850,000. CHURCH, RECTORY and CONVENT addn., WAUWATOSA, WIS. Christ King Catholic Congregation, 2610 Swan Blvd., Wauwatosa, Wis. Brust & Brust, 135 W. Wells St., Milwaukee 3, Wis., archts.

▲ **Ranch Homes, Inc.,** 625 Hunter Blvd., Birmingham, Mich. Owner Builds. $5,000,000. Christian Hills, 255 ranch HOUSES, Auburn and Adams Rds., BIRMINGHAM, MICH.

▲ **A. W. Kutsche Co.,** 6275 Schaefer St., Dearborn, Mich. CA, $1,043,835. James Couzens Elementary SCHOOL, DETROIT, MICH. City, Bd. Educ., 1354 Broadway, Detroit, Mich. Bids Apr. 6. CD 3/21.

▲ **Darin & Armstrong, Inc.,** 2041 Fenkell St., Detroit 38, Mich. CA Est. $10,000,000. ENGINEERING BLDG., DETROIT, MICH. Chrysler Corp., J. C. Zeder, vice pres., 12800 Oakland St., Detroit 3, Mich. CD 3/15.

▲ **Walter L. Couse & Co.,** 12740 Lyndon St., Detroit, Mich. CA Est. $1,100,000. SHOPPING CENTER, 30 stores, Cherry Hill and Inkster Rds., INKSTER, MICH. Cherry Hill Plaza, 103 N. Telegraph Rd., Dearborn Mich. Bids Apr. 6. CD 4/4.

▲ **Grandville Constr. Co.,** Livonia, Mich. CA Est. $1,200,000. 110 brick ranch HOMES, Norwich and Seven Mile Rd. section, LIVONIA, MICH. Hannan Real Estate Exchange Inc., 300 Lafayette Bldg., Detroit, Mich.

▲ **Owosso Lumber & Coal Co.,** J. J. Buckley, Owosso, Mich. Owner Builds $1,500,000. Bentley Subdivision, 80 HOMES, 37 acres, OWOSSO, MICH. CD 9/15.

▲ **Bernard Edelman,** 10300 Woodward Ave., Detroit 2, Mich. Owner Builds. $4,000,000. SHOPPING CENTER, Bloomfield Shopping Town, Franklin, Telegraph, Square Lake Rd. and Pontiac Line, PONTIAC, MICH.

▲ **Practical Home Builders, Inc.,** 13440 W. Seven Mile Rd., Detroit, Mich. Owner Builds. $3,500,000. 297 brick HOUSES, 70 acre site Delaware and Seven Mile Rd., REDFORD, MICH.

▲ **Stieber Realty Co.,** (agent), 21999 Gratiot St., East Detroit, Mich. Owner Builds. $3,000,000. 300 brick HOMES Winthrop Ave. and M-59 section, UTICA, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES
May 3, Iowa

STREETS AND ROADS
May 3, Iowa May 5, Kansas

BIDS ASKED—BUILDINGS

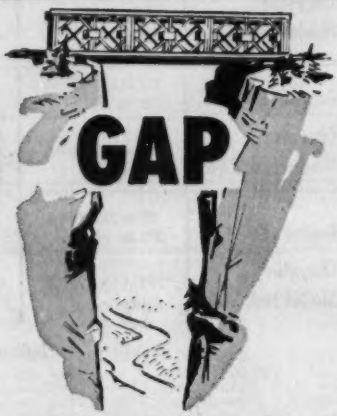
Tex., Houston—SCHOOL—BA 5/5—Housing Independent School Dist., 1400 Capitol St., Finnigan Park Elementary School. $400,000. Plans deposit $25. Milton McGinty, 2425 Ralph St., archt. Ralph Huffington, 301 Avondale St., Grafius, Duke & Assocs., 2801 San Jacinto St., and James I. Stillman, 1510 Barbee St., engrs. CD 11/22.

▲ **Colo., Pueblo**—HOSPITAL—BA 6/17—Sisters of Charity, Mount St. Joseph, O., 400-bed, 7 story, brick, steel St. Mary-Corwin Hospital addn. $7,000,000. John K. Monroe, Security Life Bldg., Denver, archt. Phillips-Carter-Osborn, Insurance Bldg., Denver, engrs. Engineering Service Co., 9751 Montview Bldg., Denver, electrical engrs. Marshall & Johnson, 280 S. Penn St., Denver, mechanical engrs.

▲ **Tex., Houston**—REFORMING UNIT—Bids Asked—Sinclair Refining Co., Gulf Bldg., 24,000-bbl. daily

BAILEY

BRIDGES THE GAP



USES AND ADVANTAGES of BAILEY BRIDGING

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- After existing bridges carried away or damaged by flood.
- Temporary diversions on highways where major repairs in operation.
- Reinforcing defective bridge spans.
- 100% of bridging may be recovered and made ready for immediate re-use.

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- Bridges at low cost where normal design is prohibitive.

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capacity catalytic reforming unit adjacent to existing refinery. $15,000,000; warehousing and storage, $300,000; some crude pipe lines in vicinity proposed plant, $100,000; general earthwork, grading, filling, leveling for area of huge catalytic unit, $175,000. CD 2/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† Worth Constr. Co., 300 Greenleaf St., Fort Worth, Tex., CA $3,611,758, est. $3,588,665, concrete apron runway and taxiway strengthening, ENG-41-443-55-82, Connally Air Force Base, WACO, TEX. U. S. Eng., Box 1600, Fort Worth, Tex. Bids Apr. 14 awarded Apr. 15. CD 4/18, under LB.

† List & Clark Constr. Co., Railway Exchange Bldg., Kansas City, Mo., LB $598,618, est. $839,408, enlarging Alamogordo Dam, Fort Sumner, Spec. DC 4370, NEW MEXICO. Bureau Reclamation, Dpt. Interior, Fort Sumner, N. M. Bids Apr. 14. CD 3/8.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Wangstad & Son, 4256 Nokomis Ave., Minneapolis, Minn. Owner Builds. Approx. $1,500,000. Brooklyn Terrace addn., 85 DWELLING HOUSING, 61 Ave. N and Osseo Rd., Brooklyn Center, MINNEAPOLIS, MINN.

U-Tote-Em Grocery, 6736 Navigation Blvd., Houston, Tex. Purchase and Hire. $750,000. group of RETAIL STORE UNITS, HOUSTON, TEX. CD 3/18/54.

▲ Judd & Co., Interstate Trust Bldg., Denver, Colo., Owner Builds, $2,000,000, University Hills SHOPPING CENTER No. 2, DENVER, COLO. CD 1/4.

School District No. 4, Rangeley, Colo., rejected bids Mar. 30, HIGH SCHOOL addn., RANGELEY, COLO. LB $848,954, est. $625,000. Will re-advertise. CD 4/7, under LB.

Lembke, Clough & King, Inc., Box 455, Albuquerque, N. M., CA $625,682, est. $600,000. HOSPITAL, CARLSBAD, N. M. Carlsbad Community Hospital, Carlsbad, N. M. Bids Feb. 4, awarded Apr. 15. CD 2/16 under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

May 18, California

STREETS AND ROADS

May 11, 18, 19, California

BIDS ASKED—BUILDINGS

▲ Calif., Vacaville—RECEPTION, etc.—BA 5/10—State Div. Architecture, P. Wks. Bldg., Sacramento, reception and guidance center, California Medical Facility, $3,000,000. Extended date. CD 4/13.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† T. M. Page Corp. & RCR Corp., 145 N. Duarte Rd., Monrovia, Calif., LB, $859,247, est. $750,000, Sawpit Wash channel imprv., Azusa, Los Angeles Co., ENG-04-353-55-34, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Apr. 12. CD 3/16.

▲ A. Teichert & Son, Inc., Box 397, Baldwin Park, Calif., CA, $1,532,648, Proj. 62, North Main St. and Mission Rd. relief storm drain, Lines A & B and portion of Line C, LOS ANGELES, CALIF. Los Angeles Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Apr. 1. CD 3/8.

Rothschild, Raffin & Wierick, 274 Brannan St., San Francisco, Calif., LB, $824,258, water supply system, spillway and outlet works, SAN FRANCISCO, CALIF. City and San Francisco Co., City Hall, San Francisco, Calif. CD 2/5/45.

▲ † Morley Building Co., 9304 Santa Monica Blvd., Beverly Hills, Calif., LB $2,526,060. base maintenance hangar, George Air Force Base, ENG-04-353-55-116, VICTORVILLE, CALIF. U.S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Apr. 20.

BUILDINGS

LOW BIDS AND CONTRACTS

Ace Raymond, 1032 N. Main St., Logan, Utah, LB $526,850. constr. girls' DORMITORY at Utah State Agricultural College, LOGAN, UTAH. Utah State Bldg. Bd., 419 State Capitol, Salt Lake City, Utah. Bids Mar. 29. CD 3/22.

▲† Macdonald Bldg. Co., 1517 S. Tacoma Way, Tacoma, Wash., LB, $1,999,100. imprv. 53 temporary barracks, 2 quarters and 11 messhalls, incl. installation 11 distr. transformers, Inv. 55-122, FORT LEWIS, WASH. Dpt. Army, Purch. & Contg. Officer, Fort Lewis, Wash. Bids Apr. 15. CD 4/6.

Ruud Constr. Co., Realty Bldg., Spokane, Wash., CA $491,194, Elementary SCHOOL, POMEROY, WASH. School Bd., Pomeroy, Wash. Bids. CD 11/15.

San Marco Homes, Inc., 1373 Jackson St., Hayward, Calif. Owner Builds $488,000, 61 HOME subdivision, HAYWARD, CALIF.

▲ Gus K. Newburg Constr. Co., 11732 S. Norwalk Blvd., Norwalk, Calif., LB $3,797,000 general contract;

West Coast Plumbing & Heating Co., 5715 West Adams St., Los Angeles, Calif., LB $677,620 mechanical work;

Hoffman & Sons, 1100 Gaviota St., Long Beach, Calif., LB $530,000. electrical work for Robert A. Millikan HIGH SCHOOL, LONG BEACH, CALIF. Long Beach

Darex Diary

by Henry L. Kennedy

Member, American Concrete Institute
Manager, Construction Products
Dewey & Almy Chemical Company

*Factors which affect control of air entrainment in concrete

*Specifications for making above-grade masonry water-repellent

REQUIRED AIR CONTENTS can vary 100% in mixes containing different-sized aggregates. Therefore, we've got to be realistic about adding air entraining agents to concrete. Adequate measuring equipment — and trained personnel to operate it — is a must. It's not as simple as knocking a hole in the drum of AEA and adding a "slug" when it's needed.

Let's look at the average range of air contents:

Max. Size Agg. (In.)	Ave.% Air Recommended	Range Air Percentages
6	3	2—4
2	4	3—5
1½	4½	3½—5½
1	5	4—6
¾	6	5—7
⅜*	8	7—9*

**This is really a modified mortar, not concrete as we think of it.*

At a rate of ½ to ¾ oz. per sack of cement, DAREX AEA will generally satisfy the above recommendations. But, like the rules of English grammar there are always exceptions and these will either increase or decrease the amount of air entraining agent required.

These conditions, for example, will *decrease* the amount of air to be added:

1. *where abnormally high percentages of sand or of the 30-100 mesh sand fraction have of themselves increased the air content.*
2. *when cold weather has caused more air to be entrained.*
3. *a higher slump (up to 6 inches maximum) gives more air in concrete.*
4. *cement already containing some inter-ground air entraining agent, such as "transition" cement.*

On the other hand, the amount of air may have to be *increased* because of inhibitors such as these:

1. *deficiency of the 30-100 mesh sizes in the sand, or more important, an excess of the 200 mesh size.*
2. *switching from soft to hard water.*
3. *excessive over-loading of the mixer — mixing blades in poor condition.*
4. *switching from a structural mix (max. size ¾" and 5" slump) to a paving mix of low slump (2").*
5. *mixing time too short.*

But here is the real zany situation we encounter at times. In certain geographical locations the fine aggregate may contain a conglomeration of organisms which can actually be saponified by the alkali in the cement to an extent that 4 to 5% air will be entrained. Tests show that this "accidental" air is of little value in increasing the durability of the concrete. Hence, it is necessary to put in a de-airer to eliminate this air, and then add the proper amount of air entraining agent to put back the proper type and amount of air. This situation exists in at least two locations of which I have heard, one in the State of Washington and the other in Canada.

* * *

I MENTIONED in a recent Diary the wonderful job which can be done with DARAWELD cement combinations as a water repellent for the interior of below-grade surfaces.

This should not be confused with the excellent protection of exterior above-grade masonry against efflorescence, weathering and staining effected by our water repellent called DARACONE. DARACONE is a balanced formula of a special silicone resin and solvent. Maybe you would like to have a copy of our prepared specifications which have led to excellent results on applications where other water repellents have failed.

Drop us a line and ask for Bulletin H-S, which contains these specifications and other pertinent information about tests you can make to insure the lasting protection of masonry walls.

DEWEY and ALMY CHEMICAL COMPANY

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Offices or Subsidiaries in principal U. S. cities
and in Buenos Aires, Copenhagen, London, Melbourne, Milan, Montevideo, Montreal, Naples, Paris, São Paulo, Tokyo.

Bd. Educ., 715 Locust Ave., Long Beach, Calif. Bids Apr. 15. CD 3/28.

▲ **Theo. G. Meyer & Son,** Quint and Custer Sts., San Francisco, Calif., LB, **$4,680,353,** (2nd unit) 14 story, rein.-con. MEDICAL SCIENCE BLDG., 3 and Parnassus Sts., SAN FRANCISCO, CALIF. Bd. Regents, University of California, Berkeley, Calif. Bids Mar. 14. CD 3/11.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ont., Arva**—BA 5/6—R. C. Dunn, engr., London Twp. Offices, Arva, sewage treatment plant, trunk and sanitary sewers for London Twp., Arva, Ont. $1,300,000. CD 5/21/53, under Ont., London.

▲ **Ont., Port Credit**—HARBOR—BA 5/11—Dpt. P. Wks., Hunter Bldg., Ottawa, harbor development, dredging approach channel and slip 850 ft. long wharf, steel piling. $2,000,000. Plans deposit $50.

BIDS ASKED—BUILDINGS

Que., Montreal—SCHOOL—BA 5/2—La Commission Scolaire des Ecoles Catholiques de Ville La Salle, Montreal, 2 story, bsmnt., rein.-con., brick Leroux School, Ville La Salle. $400,000. J. N. Beauchamp, 82 Notre Dame St. W., archt. Beaulieu, Trudeau, Dubuc, Lalancette & Beaulieu, 4151 Sherbrooke St. W., engrs.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

T. C. Gorman Nova Scotia Ltd., 123 Roy Bldg., Halifax, N. S. LB **$977,800,** jetty at R. C. Naval Air Station, DARTMOUTH, N. S. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Apr. 13. CD 3/29.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto, Ont.—**McNamara Constr. Ltd.,** 42 Industrial St. Leaside, Toronto, Ont., CA, **$1,493,902** hot mix paving and granular base 17.4 mi. Queen Elizabeth Way from Fort Erie to Lund's Lane, Fort Erie;

Ont.—**Law Constr. Ltd.,** 225 Sterling Rd., Toronto, Ont. CA, **$395,883,** grading, culverts, granular base and hot mix paving 8 mi. Hy. 3 along Kent Elgin Co. line near Essex;

Ont.—**Keystone Contractors Ltd.,** 2490 McDougal St., Windsor, Ont., CA, **$1,047,464,** grading, culverts, granular base and c. conc. 5.4 mi. controlled access Hy. 401 near Windsor. Grand total $2,883,249. Bids Apr. 13, awarded Apr. 15. CD 3/16.

▲ **Miron & Freres Ltd.,** 2201 Ct. St. Michel, Montreal, Que., LB **$1,153,000.** excavation of an overland part of Seaway channel in Lachine Section of St. Lawrence River near Cote Ste. Catherine, ONTARIO, QUEBEC. St. Lawrence Seaway Auth., No. 2 Temporary Bldg., Ottawa, Ont. Bids Apr. 14. CD 3/17.

Eastwood Constr. Co. Ltd., P.O. Box 796, Peterborough, Ont., CA, **$825,000.** 150x335 ft., steel, concrete community center, PETERBOROUGH, ONT. Peterborough Memorial Community Center Bldg. Committee, c/o Blackwell, Craig & Zeidler, archts., 147 Hunter St. W., Peterborough, Ont. Bids Apr. 12, awarded Apr. 18. CD 3/30.

▲ **Jackson-Lewis Co.,** 80 King St. W., Toronto, Ont., CA Est. **$5,000,000.** superstructure for grandstand and clubhouse at race course, Hy. 27 south of Malton Rd., TORONTO, ONT. Ontario Jockey Club Ltd., 103 Church St., Toronto, Ont. Bids Apr. 6, awarded Apr. 18. CD 3/22.

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **Wallerstone Constr Co.,** 30 Baker St., London, England, CA, Approx. **$7,000,000,** 2,000,000 bbl. annual capacity cement PLANT, popcum Indian Reserve, near CHILLIWACK, B.C. International Cement Corp., 2325 Chestnut St., Dallas, Tex., U.S.A. CD 9/21.

▲ **North Bay Developments Ltd.,** c/o Dell Constr. Co. Ltd., 2461 Bloor St. W., Toronto, Ont., Owner Builds, **$1,000,000,** 100 unit HOUSING, at NORTH BAY, ONT.

▲ **Foundation Co. of Canada Ltd.,** 1220 Bay St., Toronto, Ont., CA, **$1,000,000,** 11 story, brick, stone OFFICE, Adelaide and Bay Sts., TORONTO, ONT. Stair Buildings Ltd., c/o Marani & Morris, archts., 1250 Bay St., Toronto Ont. Awarded Apr. 12. CD 6/9/52.

Foundation Co. of Canada Ltd., 1220 Bay St., Toronto, Ont., CA, **$500,000,** 1 story, 220x320 ft. L-shaped steel, brick, cut stone FACTORY, New Malton Rd. near Hy. 27, TORONTO, ONT. James Robertson Co. Ltd., 215 Spadina Ave., Toronto, Ont. Bids Apr. 4, awarded Apr. 18. CD 4/1.

P. A. Lecuyer Ltd., P.O. Box 374, Val d'Or, Que., CA, **$805,332,** SCHOOL, GYMNASIUM and RESIDENCE, LA SARRE, QUE. La Municipalite Scolaire de Village de La Sarre, La Sarre, Que. Awarded Apr. 15. CD 2/28, under LB.

▲ **Lux Garden Enterprises,** 1059 Ste. Rose Blvd. W., Montreal, Que. Owner Builds. **$1,000,000.** 100 HOUSES, bungalows, one mi. south of Cartierville bridge, MONTREAL, QUE.

▲ **Douglas Bremner Ltd.,** 5965 Monkland Ave., Montreal, Que., LB, **$1,597,447,** part 1 and 2 story 135x360, 65x165 ft., concrete-steel, brick Northmount High SCHOOL, Mackenzie and Lavoie Aves., MONTREAL, QUE. Protestant Bd. School Comrs. of Montreal, 3460 McTavish St., Montreal, Que. Bids Apr. 14. CD 3/11.

ALASKA

BIDS ASKED—BUILDINGS

† **Alaska, Nome**—SCHOOL—BA 5/18—Alaska P. Wks., Dpt. Interior, Juneau, rein.-con. school addn., Proj 50-A-189. $619,000. Plans deposit $25. CD 2/24/54.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲† **Scheumann & Johnson,** Lloyd Bldg., Seattle 1, Wash., LB **$1,008,900,** 1,245 ft. rein.-con. trestle on Tongass Ave., Proj. 50-A-164, KETCHIKAN ALASKA. Alaska P. Wks., Dpt. Interior, Box 1181 Juneau, Alaska. R. M. Murray, Securities Bldg., Seattle 1, Wash. engr. Bids Apr. 13.

† **Columbia-Geneva Steel Div. of U. S. Steel,** 1331 Third Ave. Bldg., Seattle 1, Wash., CA **$512,360,** sheet steel and H piling for Alaska Railroad Terminal Inv. SECM-7719, SEWARD, ALASKA. General Services Admin., General Services Bldg., Wash. 25, D. C CD 3/3.

LATIN AMERICA

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **Richardson Constr. Co.,** 645 N.W. 7 Ave., Fort Lauderdale, Fla., U. S. A. CA **$50,000,000.** 15,000 HOMES, CHILE. Govt. of Chile, Santiago, Chile.

▲ **Merritt-Chapman & Scott Corp.** 260 Madison Ave., New York, N. Y., U.S.A. CA Est. $5,000,000. 350-room HOTEL, CIUDAD TRUJILLO, SANTO DOMINGO. Govt. of Dominican Republic, Ciudad Trujillo, Santo Domingo.

AMERICANS ABROAD

BIDS ASKED—HEAVY CONSTRUCTION

▲ Bids will be taken on the following project under International competitive bidding of NATO.

FRANCE

Ministere de l'Industrie et du Commerce, Service Special des Depots d'Hydrocarbures, 85 blvd. du Montparnasse, Paris. Install over 140 kilometers of 8 in. pipe in the Cambrai-Dunkerque pipe line, one lot of which is to be coated in line and four lots to be coated at plant. Est. $2,285,000. Bidding will close June 8. Firms wanting to bid on this project should report their interest before April 22. For information on bidding NATO projects see 6/25 Construction Daily

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UNIT PRICES

North Carolina Roadwork

Taylor Construction Co., Biltmore, N. C., was low of nine bidders at $478,233 on a roadwork contract awarded by the North Carolina State Highway & Public Works Commission. Work consists of grading, coarse aggregate base course, and bituminous surface treatment on 7.84 mi of road between Foscue and Boone, in the northwest part of the state.

The Taylor bid won by a margin of only 1% due mostly to the 1¢/cy edge on excavation.

Work started March 17, with 260 days for completion. Both rail and road transportation are available, with the jobsite 23 miles from the railhead.

1C Taylor Constr. Co., Biltmore, N. C..... $478,233
2 H. F. Ramsey Co. Inc., Asheville, N. C..... 483,245
9 H. R. Stewart & Co., Asheville, N. C..... 688,892

Bids: 2-22-55 Items	Unit	Quantity	Unit Prices 1C	2
Clearing	ac	29	$250.00	$225.00
orchard	ac	2	50.00	50.00
Grubbing	ac	11	100.00	100.00
orchard	ac	1	50.00	25.00
Excavation, unclass	cy	508,500	0.58	0.59
drain ditch	cy	5,300	0.75	0.59
borrow	cy	6,500	0.25	0.25
Overhaul	stay	100,000	0.005	0.005
Base crse, course aggr	t	63,850	1.10	1.10
Bit surf treatm, C A S C	sy	101,800	0.319	0.319
Conc endwalls, cl C	cy	102	60.00	60.00
RCP for spring, 24"	lf	20	10.00	5.00
CMP bit coated, type B:				
15"	lf	1,002	2.95	3.00
18"	lf	2,972	3.90	4.00
24"	lf	1,248	6.00	6.00
30"	lf	484	7.50	7.00
30" 12 ga	lf	310	9.25	9.50
36"	lf	102	11.00	12.00
36" 10 ga	lf	166	13.00	14.00
48"	lf	68	14.25	15.00
48" 10 ga	lf	150	17.25	18.00
54"	lf	888	17.00	19.00
60" 8 ga	lf	100	23.25	23.50
66"	lf	208	26.00	26.00
Perf CMP, 6"	lf	1,000	1.00	1.00
Exc, underdrain	cy	210	2.00	1.50
Fine aggr, underdrain	cy	130	5.00	5.00
Concrete, spring box	cy	1	75.00	70.00
Barbed wire fence reset	lf	16,000	0.04	0.04
Hog wire fence reset	lf	5,000	0.07	0.07
Barb & hogwire reset	lf	2,000	0.10	0.10
Other fence reset	lf	2,000	0.25	0.20
Galv metal funnels	ea	2	30.00	25.00
CMP, 8"	lf	50	1.50	1.75
ROW markers	ea	126	6.00	5.00
Galv steel pipe, ¾"	lf	161	0.75	0.50
1½"	lf	65	1.25	1.00

Structural work on the Foscue-Boone highway went to John H. Brinkley, Thomasville, N. C., for $100,074. His bid was 7% below second and lower than second on all items but dry and wet excavation.

1C John H. Brinkley, Thomasville, N. C..... $100,074
2 W. E. Graham & Sons, Cleveland, N. C..... 106,869
9 Dickerson, Inc., Monroe, N. C..... 135,442

Bids: 2-22-55 Items	Unit	Quantity	Unit Prices 1C	2
Excavation, dry	cy	200	$5.00	$3.50
wet	cy	55	30.00	19.00
uncl struct	cy	1,360	2.00	2.80
uncl channel	cy	160	2.00	2.00
Maint & remove str, sta				
163+02	ls	.....	500.00	2,500
286+46	ls	.....	50.00	300.00
Cl A concrete	cy	1,189	47.00	49.00
Reinforcing steel	lb	214,750	0.095	0.10
Str st., approx 175, 000#	ls	.....	16,000	16,200
Steel H piles, 12" @ 53#	lf	240	5.00	6.50
16' timber & span bridge, 12' rdwy, f&p	ls	1	350.00	700.00

Sellers House Moving Co., Inc., took the building moving to clear the site for this highway.

1C Sellers House Moving Co., Greenville, S. C. $25,140
2 G. E. Crouch, Asheville, N. C..... 25,740
5 Bare Bros. & Miller, W. Jefferson, N. C..... 41,800

California Highway Building

California's Dept. of Public Works let a reinforced concrete office building for Division of Highways District X headquarters at Stockton in three contracts totaling $761,422. Including the general, electrical and mechanical contracts, the cost per sq ft will be $11.74. About 7% of this total is site work—clearing existing concrete foundation slabs, paving, grading, fencing, drainage, area lighting and utilities. Cost per sq ft are:

Building	$7.95	Heating, air conditioning, refrigeration	$2.05B1
Electrical	1.19		
Mechanical	2.60A	Plumbing	0.56B2

Award on basis of alternate A, combines work of B1 & B2

Design is under State Architect Anson Boyd, Division of Architecture.

The $515,515 contract for general work went to M&K Corp., San Francisco, low of 9 bidders. The building is 2-story with basement and penthouse. Its 64,857-sq ft floor area will provide space for offices, printing and photostating, maintenance and repair, supply and storage, and a basement assembly room. Construction features a reinforced concrete structural frame with steel sash, wood and metal doors, wall finish of plaster and exposed masonry and concrete, movable metal partitions, composition roofing, aluminum work, cast stone, paving and drainage, elevator, acoustic and ceramic tile, floor covering, and a 28-car shelter.

Bids: 2-1-55 Work started 3-14-55, completion 3-12-56

1C M & K Corp., San Francisco, Calif..... $515,515
2 Rothschild, Raffin & Weirick, San Francisco. 528,925
9 Floyd G. Borchardt, Stockton, Calif..... 602,100

Electrical work had 9 bidders:

1C Collins Electrical Co., Inc., Stockton, Calif... $77,333
2 Wismer & Becker Electric, Inc., Sacramento. 79,115
9 Eto-Hokin & Galvan, Stockton, Calif..... 104,576

The mechanical award was for plumbing, heating, air conditioning and refrigeration, below the alternate permitting separate plumbing bids.

Mechanical work combined:

1C Scott Co., Oakland, Calif..... $168,574
2 Baker-Newman Co., Modesto, Calif..... 170,997
5 Haverty Co., Fresno, Calif..... 189,000

Heating, air conditioning, refrigeration:

1 Scott Co., Oakland, Calif..... $132,727
2 Lawson Sheet Metal, No. Sacramento, Calif... 133,030
9 Haverty Co., Fresno, Calif..... 150,500

Plumbing work:

1 Scott Co., Oakland, Calif..... $36,509
2 Baker-Newman Co., Modesto, Calif..... 36,982
5 Arrow Plumbing Co., Stockton, Calif..... 42,917

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THE LONGER LOOK:

McGraw-Hill survey indicates business capital spending will be up 5% this year. And future plans also are high

Capital spending by U.S. business in 1955 will set a new record, according to the eighth annual survey of business plans for new plants and equipment just completed by the McGraw-Hill Department of Economics. And, on the basis of preliminary plans reported for 1956-58, there is a very good chance that this record will be topped in each of the next three years.

The survey results reflect optimism about general business this year and for several years to come. A survey of preliminary plans last fall indicated a drop of 7% in spending by manufacturing industries this year. All but three of the 16 manufacturing industries have increased their plans since then.

Business, as a whole, plans to spend on new plants and equipment this year $29.4 billion, up 5% from 1954. Commercial companies—in trade, finance, construction and service industries—plan the largest increase, 15%. Manufacturing companies plan to spend $9.2 billion, an increase of 3%, and electric and gas utilities, $4.4 billion, up 5% from 1954. Capital spending in mining and railroads is scheduled for a small drop, while plans in other transportation and communications and in petroleum are about even with 1954.

As a result of sustained high demand for building materials, manufacturers of cement and of clay products plan increases of 58% and 25%, respectively, in capital spending this year, but construction and mining machinery companies report plans to cut spending 5%.

• **Future plans**—Plans reported for 1956-58 are now slightly lower than those for 1955—but the drop is less than half the smallest ever reported in past surveys of preliminary plans for years ahead. Indeed, companies in the chemicals and the food and beverage industries already report plans to spend more in 1957 and 1958 than in either 1955 or 1956. Plans for 1956 are just 3% lower than for 1955 for all business and 7% lower for manufacturing companies.

The significance of these figures lies in the fact that past experience has always shown preliminary plans for future years sharply lower than plans for current years. Many companies do not plan fully beyond the current year and many raise their investment plans as the years pass. On the basis of this experience, the high figures reported in preliminary plans this year point to record expenditures in 1956-58.

• **Construction vs. equipment**—This year's McGraw-Hill survey provides the first figures, based on a large sample of companies, on the distribution of manufacturers' planned capital expenditures between construction and equipment. The percentage going to construction in the various manufacturing industries is shown in the table, along with the actual volume of capital spending in 1954 and the volume planned for 1955.

Most individual industries do not vary much, in the percentage going to construction, from the average of 28% reported for all manufacturing, although the figure is only 12% for textiles. There is also not much change between 1954 and 1955 in the average proportion spent for buildings, but fairly large increases were reported in the iron and steel, machinery, auto, other transportation equipment and chemical industries.

The distinction between buildings and equipment is difficult to make, particularly in continuous process industries such as chemicals and petroleum refining. The figures in these industries, accordingly must be interpreted cautiously. But, with this caution in mind, the results can be extremely useful to those interested in the breakdown between construction and equipment sales.

Replies to other questions asked in the McGraw-Hill survey indicate that manufacturers plan to devote more of their capital spending to expansion this year (47%) than last year (43%). This is a shift away from a trend toward modernization and replacement. The largest shift toward expansion is in textiles, where 23% of spending this year is planned for expansion, against only 5% last year.

(*B&F continued on page 112*)

Capital Spending Will Rise in 1955

Industry	Capital Spending (Millions) 1954 Actual	1955 Planned	1954-55 % Change	% for Construction 1954 Actual	1955 Planned
Primary Metals	**$811**	**$1,042**	**+28**	**17**	**21**
Iron and Steel	628	810	+29	17	21
Nonferrous	183	232	+27	17	19
Metalworking	**3,249**	**3,145**	**− 3**	**25**	**27**
Machinery	694	792	+14	20	28
Electrical Machinery	439	483	+10	30	27
Autos	1,295	984	−24	25	29
Transportation Equipment (including aircraft)	191	199	+ 4	24	32
Other Metalworking	630	687	+ 9	26	22
Chemical Processing	**2,827**	**3,017**	**+ 7**	**33**	**31**
Chemicals*	1,130	1,243	+10	22	27
Paper	455	501	+10	25	19
Rubber	131	122	− 7	14	14
Stone, Clay & Glass	361	461	+28	29	26
Petroleum Refining*	750	690	− 8	58	55
Food & Beverages	**765**	**712**	**− 7**	**33**	**37**
Food	534	585	+10	38	39
Beverages	231	127	−45	22	25
Textiles	**331**	**349**	**+ 5**	**12**	**12**
Miscellaneous Manufacturing	**932**	**961**	**+ 3**	**23**	**31**
All Manufacturing	**8,915**	**9,226**	**+ 3**	**27**	**28**

* Figures for chemical and petroleum refining industries should be interpreted with caution because of difficulty in distinguishing between construction and equipment.

Source: U. S. Department of Commerce, Securities & Exchange Commission, McGraw-Hill Department of Economics

MC&S Becomes "Wolfson, Inc."

Most Wolfson interests are now integrated within Merritt-Chapman & Scott. It's a many-sided operation

Louis Wolfson's plan to assemble most of his business interests within Merritt-Chapman & Scott Corp. through exchanges of stock (ENR Dec. 9, 1954, p. 109) has proved successful. The Florida financier announced last week that holders of nearly all of the stock of Devoe & Raynolds Co., Inc., New York Shipbuilding Corp., and Tennessee Products & Chemical Corp. have accepted the exchange offer, which expired April 15.

Holders of more than 96% of Devoe Class B common stock have accepted MC&S stock in exchange, along with holders of 83% of the Class A shares. Holders of about 88% of the stock of New York Shipbuilding have accepted the offer, and holders of more than 94% of Tennessee Products.

A similar stock offer to minority stockholders in three MC&S subsidiaries leaves the construction firm with over 97% of the stock of Newport Steel Corp., Marion Power Shovel Co., and Osgood Co.

• **New MC&S setup**—Wolfson also explained how these different enterprises will fit into MC&S, which only a few years ago was predominantly a marine construction and salvage outfit.

Devoe & Raynolds and Tennessee Products will operate as parts of the Chemical, Paint & Metallurgical Division. Devoe, with eight plants, is a leading maker of paints, coatings, and finishes, and is developing industrial resins. Tennessee Products operates 13 plants for the production of heavy aromatic and agricultural chemicals, metallurgical products, fuels, and building materials.

New York Ship will operate as the MC&S Shipbuilding Division. Its yard at Camden, N. J., is one of the largest in the U. S.

• **Manufacturing**—Nesco, a division of New York Ship, will operate as part of the Manufacturing Division. Nesco makes electrical appliances, kitchenware, and industrial steel containers in five plants. Also in the Manufacturing division are Utah Products Co., Inc., of Huntington, Ind., and Shoup Voting Machine Corp., of New York. Utah makes radio and TV cabinets, speakers and transformers, and electrical and electronic equipment.

Highway Trailer Co., of Edgerton, Wis., another subsidiary of New York Ship, will operate as part of the Equipment Division. In addition to truck trailers and semi-trailers, it also makes equipment used in construction and maintenance of utility lines. This division also will include Marion Power Shovel and Osgood Co., both of which make construction equipment.

The MC&S Steel Division will include Newport Steel, of Newport, Ky., which makes cold-rolled and hot-rolled products; and Milton Steel, of Milton, Pa., fabricator of reinforcing bars, merchant bars, and bar size angles.

• **Construction**—The Construction Division now includes the industrial & building construction department, the marine & heavy construction department, a Great Lakes construction & dredging department, the marine salvage department, the inland salvage & derrick department, and recently acquired subsidiaries—C. A. Pitts General Contractor, Ltd., (the Canadian Construction Division), and Fitz Simons & Connell Dredge & Dock Co., of Chicago.

Foster Wheeler Offers A-plant for $120 per kw

Atomic power at a cost competitive with conventional generating plants may be even closer than optimists have predicted so far. Last week Foster Wheeler Corp., a maker of combustion equipment that has been active in the atomic field, announced it is ready right now to design and build for completion by 1960 or 1961 an advanced type of nuclear power plant that will compete with some present-day power station costs.

The plant offered by Foster Wheeler will use the aqueous homogeneous power breeder system, previously considered by the Atomic Energy Commission as potentially ready for testing in not less than five years from now. Robert Gould, head of FW's Nuclear Power Project, estimated a 100,000 kw plant could be built now at $21 million, or about $210 a kw.

• **Per kw cost**—That's very much in the lower range for estimated costs of atomic power, which have been running from $200 to $450 per kw. And it begins to compare quite favorably with $130-$140-per-kilowatt costs of conventional power plants (ENR April 21, p. 21).

Gould went on to say that the FW type of nuclear plant could produce power for as low as six to nine mills per kwh. By comparison, Consolidated Edison Co. of New York expects its projected Peekskill plant (ENR Mar. 17, p. 89) to produce at a cost of nine mills per kwh. AEC estimates are that seven-mill electricity would be competitive with 16% of present generating capacity. Of course, actual costs will continue to depend on such factors as system load characteristics, plant location, and financing cost.

Spring Homebuilding Season Opens With Near-Record

The spring homebuilding season got under way with a rush last month. According to estimates by the Bureau of Labor Statistics, the number of home units started was 117,000, compared with 90,000 in February.

This was 22% ahead of March last year and only slightly below the all-time March record in 1950. Private starts actually were slightly ahead of the March 1950 record, but the fact that public starts were down held the total below the March 1950 high.

Starts last month beat every month since way back in June 1951. In the first quarter, 295,000 units have been started. This is a new record for the first quarter, nearly 6% above the previous record in 1950 and 25% above last year. In terms of annual rate, March starts held close to 1.4 million for the third month in a row.

Truckers Find Thruway Saves Time and Money, Says Tallamy

The New York Thruway Authority reports that several big truckers have found it is cheaper to use the New York-Buffalo Thruway instead of parallel free roads. Revenue from commercial operators is steadily rising, according to chairman Bertram Tallamy. It was almost $261,000 in March.

Thruway officials said that General Electric Co. has been making tests with identical equipment between its Schenectady plants and Williamsville, near Buffalo. Deliveries over the Thruway showed a savings of 38 mi and of 14.2 gallons of gas. Drivers had to shift gears 298 times less than on the free highway, saved 142 brake applications, and 69 full stops. On the round trip, trucks on the Thruway saved 4 hours and 29 minutes, and averaged more than 10.6 mph faster than on free roads.

(*B&F continued on page 114*)

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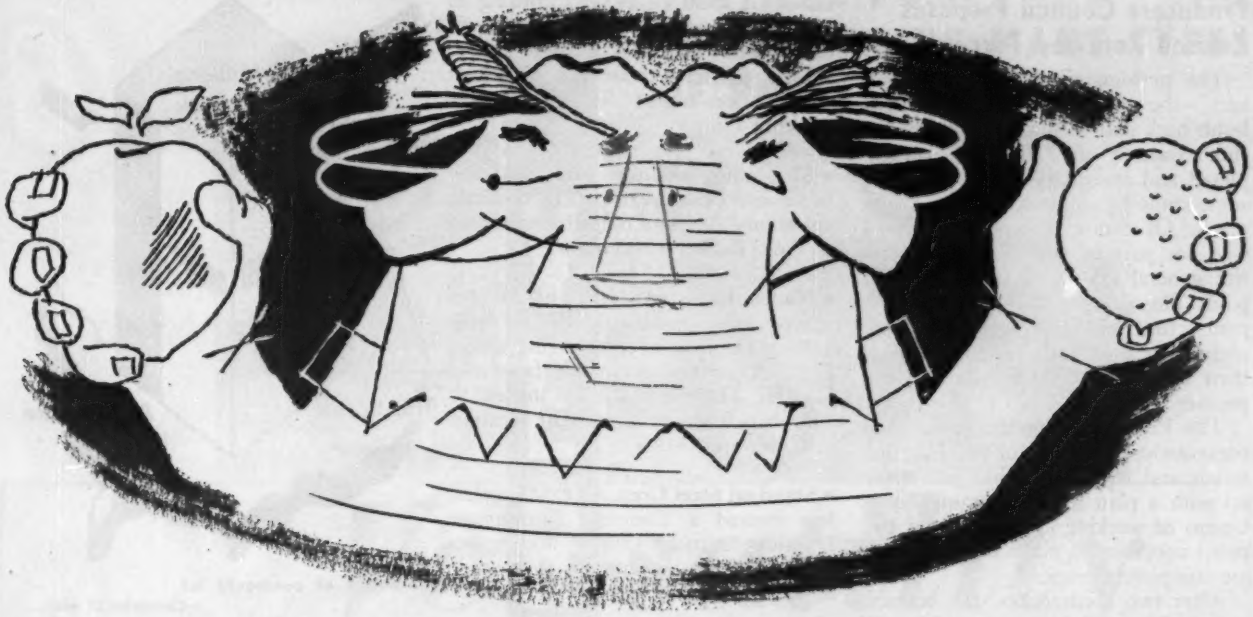

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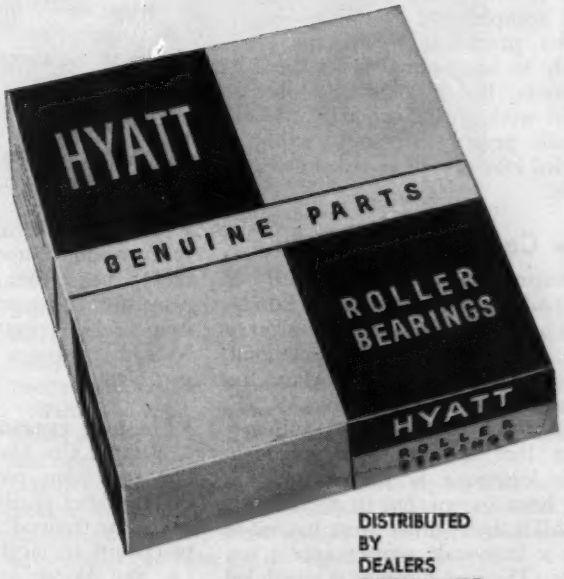

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Producers Council Proposes Revised Retained Percentage

The problem of "retained percentages"—the practice by which the client holds back part of the price of a lump-sum contract until the job is completed and accepted—has been getting some study by subcontractors and suppliers. Of course, they in turn must wait for part of their payment from the general contractor until he gets paid. This is particularly hard on subcontractors and suppliers who complete their work early on the job, and then must wait a long time for full payment.

The Producers Council, a national organization of makers of building materials and equipment, has just come up with a plan to reduce unnecessary tie-ups of working capital beyond the point necessary to make sure contracts are completely proper.

After two conferences, the council and the National Association of Credit Men suggest that a 10% retention is reasonable during the early stages of the work. But after the job is 75% complete, they suggest that the percentage be reduced to 5% on those parts of the job which are themselves 75% complete.

The procedure would apply primarily to lump-sum work on private contracts. But it could be applied to public work, to the extent that public officials permit. It would apply to bonded jobs as well as unbonded contracts.

New Cement Plant for Pike

Dragon Cement Corp. (a U. S. Steel subsidiary) has begun test borings for a new $10-million cement plant at the West Stockbridge-Richmond, Mass. town line near the Massachusetts Turnpike. Chairman W. F. Callahan of the toll road authority states that the availablity of high-grade limestone in this section has long been known, but its previous accessibility from other areas has made such a large-scale project appear too costly. The new turnpike is scheduled for completion in November 1956.

Business Briefs . . .

• **$47-million power plant** will be built by Public Service Co. of Indiana on the Ohio River near New Albany. Construction is scheduled to start in June.

• **American Telephone & Telegraph** Co. expects to spend a little more for construction this year than the $1.4 billion it spent in 1954, according to President Cleo Craig. From the end of World War II through 1955, AT&T will have spent $11 billion for construction—about $500,000 every working hour.

• **$1.2-billion highway plan** for Louisiana over a 15-year period is being considered by state officials, according to Gov. Robert F. Kennon.

• **Napco Industries, Inc.**, of Minneapolis, has purchased the Transo Loader Division of Westinghouse Air Brake Co. Transo makes front-end loaders. The plant will be moved to Minneapolis from its present location in Coldwater, Mich.

• **Standard Steel Corp.**, of Los Angeles, has formed a Concrete Equipment Division to make cement and aggregate batching equipment for road-building.

• **$34-million power plant** will be built near Coshocton, Ohio, by the Columbus & Southern Ohio Electric Co., of Columbus. Work will start in October for completion by late 1957.

• **Merger on**—Whiteman Mfg. Co., of Los Angeles, has bought the stock of Concrete Equipment Mfg. Co., also of Los Angeles, which makes transit concrete mixers. Whiteman is building two plants to expand its own facilities for making concrete finishing and screening equipment.

• **Merger off**—Ideal Cement Co., of Denver, and Superior Portland Cement, Inc., of Seattle, have given up plans for a merger. **The two firms** were unable to get clearance from the Antitrust Division of the Justice Department.

• **Firestone expansion**—Firestone Tire & Rubber Co. has begun a $1.2-million expansion program at two synthetic rubber plants it has just bought from the federal government. The two plants are located at Lake Charles, La., and Akron.

• **Crown Zellerbach goes into plywood**—Crown Zellerbach Corp., of San Francisco, paper manufacturer, plans to get into the plywood field with construction of a $750,000 veneer mill near Portland, Oregon.

• **Consolidated Engineering Co.**, of Pasadena, Calif., will start construction next month on a $1.5-million research, engineering, and sales building in Pasadena.

Activity This Week

As reported to ENR
(In millions of dollars)

Amount of contracts let

	This Week	Cumulative 17 wks 1955	1954	% chge
Federal	$25.5	$551.1	$308.6	+79
State and municipal	124.5	1,612.8	1,388.1	+16
Total public	150.0	2,163.9	1,696.7	+28
Total private	308.5	3,652.1	2,209.3	+65
U. S. Total	$458.5	$5,816.0	$3,906.0	+49
Contracts by type of work				
Waterworks	$2.4	$84.6	$64.9	+30
Sewerage	9.3	130.2	107.2	+21
Bridges	3.9	152.8	129.5	+18
Highways	42.6	617.6	482.0	+28
Earthwork, waterways	2.4	141.7	90.0	+57
Buildings:				
Public, excl. hsg.	50.0	548.7	521.8	+5
Housg., public	21.6	84.7	61.8	+37
Housg., private	186.0	2,145.3	1,228.1	+75
Commercial	26.3	516.7	382.5	+35
Industrial	93.9	778.4	520.2	+50
Unclassified	20.1	615.3	318.0	+93
Total	$458.5	$5,816.0	$3,906.0	+49

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(millions of dollars)

	Week of Apr. 21 1955	Cumulative 16 wks 1955	% chge '54-'55
Corporate securities	$59.4	$925.4	—8
State and municipal:			
All except housing	63.8	1,222.2	—20
Housing	...	46.1	+8
Federal loans	1.2	26.1	—38
Federal aid	...	...	...
Total non-federal	$124.4	$2,219.8	—14
Federal appropriations:			
In U. S.	...	...	...
Outside U. S.	...	...	...
Total new capital	$124.4	$2,219.8	—14

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	4/21	649.51	312.22	136.16
	3/31†	647.49	311.25	135.74
Building cost	4/21	461.78	249.62	131.27
	3/31†	460.62	249.00	130.94
Volume	Mar.	691	281	200
	Feb.	459	187	133

† Official monthly index for April

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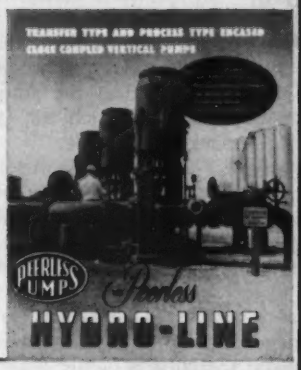

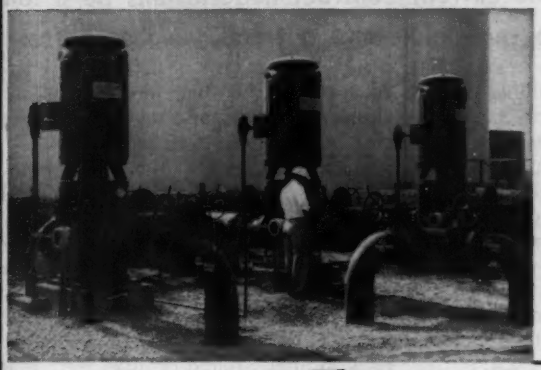

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Wage Increases Now a Habit?

Behind current contract negotiations lie a long record of wage rate hikes and a trend toward shorter work weeks

The building trades are moving their 1955 collective bargaining negotiations into high gear across the nation with an impressive record of success behind them. For the last 48 years they've won wage increases every year but two and have pushed the progressive wage increase along at the annual rate of 4.4%.

That's the report of the U. S. Department of Labor's Bureau of Labor Statistics, based on its 48th annual survey of union scales in the building trades.

Other highlights of the report include these:

- Last year's increase averaged 10 cents, or 3.7%—the smallest annual increase since the war.
- Nearly 87% of the journeymen and 91% of the helpers and laborers were on a standard work week of 40 hours but some were down to a 30-hour week.
- The trend of a narrowing wage differential between skilled and unskilled workers continued in the construction industry.

• **Rates**—Typical wage increases during the last fiscal year ranged from 5 to 15 cents an hour but at least 11% of the union craftsmen won increases of 20 cents or more.

Biggest gains were made by steam and sprinkler fitters and plumbers with an average increase of 16 cents. Asbestos workers, boilermakers and sheet metal workers ran close behind with pay boosts of 14 and 13 cents. Advances for most of the other trades averaged out at 8 to 12 cents. Stonemasons and plasterers were among the lowest with average increases of 7 to 6 cents.

Net result was that most of the journeymen ended up with rates ranging from $2.70 to $3.20. For helpers and laborers the range was between $1.80 and $2.30. Highest paid were bricklayers with an average of $3.39, followed by plasterers and stonemasons with $3.27 and $3.25.

Behind the averages, of course, lay wide variations within individual crafts as between cities and regions because of the local nature of the industry. Contributing to this were variations in the extent and strength of unionization. Newark, N. J., paid the highest with a journeyman average of $3.47. Charlotte, N. C., paid the lowest with an average of $2.39.

On a regional basis, unions fared best in the Middle Atlantic states with a journeyman average of $3.05 for the building trades. Poorest showing was in the Southeast where the average was $2.64.

• **Work week**—In most cases no negotiated changes were made in the basic work week. Average for the year for all in the building trades was 39.4 hours.

Contracts calling for a 35-hour work week were in effect for one out of every eight journeymen and were most common among bricklayers, lathers and painters. About 18% of the plasters had a negotiated 30-hour week.

So far, the shorter work week has aroused little national interest. When AFL president Meany raised the issue before the Senate Labor Committee last week, he got little response.

But he noted that in the last year or two labor has shown greater interest in the possibility of more leisure time (ENR April 21, p. 165). "The prospects for a continuing substantial increase in productivity throughout the economy," he said, "underline the need for prompt action to achieve a shorter work week."

NLRB Makes It Easier To Get Dispute Heard

The National Labor Relations Board has liberalized the jurisdictional yardstick it uses for disputes in the construction industry.

"In the future," it says, "the board will assert jurisdiction over a general construction contractor on the basis of the total volume of his business or of the general construction which he undertakes to discharge."

Here's how it worked in a carpenters' dispute on a construction job in Oklahoma.

Dennehy Construction Co., Oklahoma City, had a $1.2-million contract for a hospital. It sublet the electrical, plumbing, heating, plastering, flooring, roofing, sheet metal, tiling, and acoustical work. Because so much of the materials and equipment used at the project was purchased by the subs, Dennehy couldn't meet the NLRB jurisdictional test of acquiring over $500,000 worth of goods a year in interstate commerce.

The board found two ways of getting around this. It added the subs' purchases to those of Dennehy and it looked at the amount of construction for which the general contractor was responsible.

After taking jurisdiction, the board knocked down a preferential hiring agreement which the contractor had made with the union. The agreement required hiring of union carpenters and compliance with the local's by-laws. Two carpenters who showed up couldn't get jobs because they weren't members of the local. The union was held responsible.

Two Building Trades Win Wage Hikes in Delaware

Two of the AFL building trades in Delaware have come out of their collective bargaining sessions with heavy boosts in wages. Wilmington sheet metal workers won an increase of 35 cents, spread over a two-year period. Carpenters obtained a 17½-cent hike.

The new rate for sheet metal workers was negotiated by Local 59 of the Sheet Metal Workers International Association and the Employers Association of Roofers and Sheet Metal Workers, Inc. Under the two-year contract, wages will be increased 15 cents on May 1, raising the present rate of $3.02½ to $3.17½. Six months later, 10 cents more will be added. The final 10-cent boost will become effective May 1 of next year, making the rate $3.37½.

Local 626 of the United Brotherhood of Carpenters and Joiners signed a one-year contract with the Allied Construction Industries of Delaware. Effective May 1, it adds 17½ cents an hour to the present rate of $2.92½.

Contractor and Union Seek Boycott Damages

A labor dispute at the Boonville, Ind., sewage disposal plant, now under construction, has resulted in a civil suit against members of District 50 of the United Mine Workers of America. Object of the action is to obtain damages in the amount of $800,000.

The suit stems from the perennial warfare between the AFL and the United Construction Workers. Damages sought are those which resulted from a secondary boycott by District

50 against the construction company and employes at the plant in an attempt to force the company to employ members of District 50.

Filed in the Federal District Court at Evansville, the suit was brought by Goodwin Construction Co., of Jeffersonville and St. Augustine, Fla., and Local Union No. 561, affiliated with the American Federation of Labor.

Iowa Building Trades Ask for Higher Wages

Contract demands of the building trades in Des Moines, Iowa, have boiled down to one thing—a wage increase of 25 cents an hour. A few of the trades are also asking for 7½ cents in welfare contributions.

This is how the individual demands shape up so far:

• Ironworkers and carpenters—25 cents plus 7½ cents in welfare benefits. They're now getting $2.87½ and $2.80 cents, respectively.

• Laborers, teamsters and operating engineers—25 cents. Their present rates are $2.05, $2.15 and $2.90.

Neither the plumbers nor sheetmetal workers have made their demands public but they are believed to be seeking about 15 cents an hour. Present rates are $3.10 and $2.81½. Both get welfare payments of 7½ cents.

The following trades, now getting the rates indicated, have not yet voiced their demands: bricklayers—$3.55; cement finishers—$2.80; lathers—$2.87½.

General feeling is that most of the building trades settlements will run around 10 or 15 cents.

Picketing Open to Attack If Not Aimed at Employes

There's nothing sacred about picketing at a construction project if the picketing is aimed at the contractor.

Unless its primary purpose is to persuade the workers on the job to take a certain course of action, picketing loses its legal protection. In that case, the contractor can go into a state court and have it stopped. At least that's the story in Pennsylvania, under a new State Supreme Court ruling.

The ticklish question came up during construction of a million-dollar apartment house in Bryn Mawr, Pa. Contractors on the job had hired about 80 nonunion men.

Four pickets were placed by the Building and Construction Trades Council at the entrances to the project and two supervisors were put in charge of the pickets. Picket signs declared that union standards were not being observed. Neither the contractors nor their employes were approached.

The supervisors stopped delivery trucks and talked to the drivers, who went away without unloading. As materials and equipment were shut off, work on the project came to a standstill.

An injunction was granted under state law against the picketing and the court upheld the injunction. Its reasoning was this:

• Communication of the facts of a labor dispute through use of pickets falls within the "free speech" protection of the federal Constitution but only if the picketing is legal.

• Picketing is legal if its primary object is to persuade employes to do what the union is seeking to obtain. It's illegal if it's an effort to persuade the employer to do it.

Here the picketing was not directed at the employes. Its object was to force the contractors to bring pressure on their employes to join unions.

Labor Briefs . . .

• **Boost for carpenters**—Carpenters in 22 towns and cities in central Connecticut have accepted a two-year contract granting a wage increase of 12½ cents an hour for each year. When the second increase becomes effective next April 1, the rate will amount to $2.97½.

• **Laborers settle**—Local 1358 of the laborers union in Corning, N. Y., has called off its construction strikes. The new agreement with the Corning Contractors and Building Assn. establishes a rate of $1.90.

• **Can you prove it?**—The U. S. Supreme Court refused to review the NLRB ruling that an employer can be forced to substantiate his professed inability to meet wage demands. As the law now stands, the wage data the union is entitled to includes the names of workers and the pay they get.

• **Apprenticeship** — Labor Secretary Mitchell is setting up a series of regional conferences on apprentice training "to tackle some of the problems posed by the shortage of skilled workers in the nation." Sponsored by labor and management with the assistance of state and federal apprenticeship agencies, the series will get under way with the Eastern Seaboard Conference on May 31.

• **Canadian painters**—Edmonton, Alberta, has repealed the ordinance which required the licensing of master painters and prevented journeymen painters from doing contract work. Similar action was taken previously for carpenters and bricklayers because the protection afforded wasn't worth the hardship created.

TAKE TIME OUT

Cancer strikes 1 in every 4 Americans. It strikes with vicious swiftness. Too often it is discovered — too late.

To protect yourself and your family, have a thorough medical examination every single year without fail. Six months after such an examination, every woman over 35 should return for a pelvic checkup. Every man over 45 should have a chest X-ray twice each year. *Many cancers can be conquered if caught in time!*

STRIKE BACK AT CANCER... MAN'S CRUELEST ENEMY

Give to AMERICAN CANCER SOCIETY

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: May 17, 1955

The Hydro-Electric Power Commission of Ontario

ST. LAWRENCE POWER PROJECT
RAILWAY RELOCATION

SEALED TENDERS, in quadruplicate, addressed to the undersigned and clearly marked "Tender for St. Lawrence Power Project - Railway Relocation, Canadian National Railway", will be received up to 4:30 o'clock p.m. Eastern Daylight Saving Time on

TUESDAY MAY 17, 1955

for the construction of subgrade and structures on any or all of three parts of 39.45 miles of Canadian National Railways Main Line double track relocation between Cornwall and Cardinal, Ontario.

The work consists of clearing, close cutting, grubbing, excavation, embankments, construction of culverts, bridge foundations, retaining walls, fences and other pertinent work and is to be completed on or before November 30, 1955.

Copies of the Tendering Documents may be obtained on and after April 19, 1955, at the office of the Director of Supply, Ontario Hydro, 620 University Avenue, Toronto 2, Ontario, on payment of $25.00 for each set. This charge will not be refunded.

Tendering documents may be inspected at the above location and at the offices of the following: The Commission's Field Office, Mille Roches, Ontario; Power Authority of the State of New York, 270 Broadway, New York 7, New York; and Uhl, Hall and Rich, 230 Congress Street, Boston 10, Massachusetts.

Tenders must be accompanied by a certified cheque drawn on a Canadian chartered bank for the sum of one hundred and twenty-five thousand dollars ($125,000) for each part tendered on. Provisions for the return of the cheques appear in the Tendering Documents.

Each successful tenderer will be required to furnish a performance bond, in the form approved by the Commission, and issued by a bonding company licensed as such in the Province of Ontario and acceptable to the Commission, for one hundred per cent (100%) of the total amount of its contract.

The lowest or any tender will not necessarily be accepted.

E. B. EASSON, Secretary,
The Hydro-Electric Power Commission of Ontario,
620 University Avenue,
TORONTO 2, Ontario.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4404) will be received at Ogden, Utah until May 26, 1955, for furnishing labor and materials for Willard Dam Test Embankment, Weber Basin Project, Utah. Location near Ogden, Utah in Box Elder County. Principal items are 100,000 cu. yds. excavation in borrow area, transportation and placement in test embankment, first 100,000 cu. yds; 100,000 cu. yds. excavation in borrow area, transportation and placement in test embankment, over 100,000 cu. yds; and other work. Completion time 90 days. For particulars, address Bureau of Reclamation, Ogden, Utah; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

Bids: May 26, 1955

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR
CONSTRUCTION OF
IROQUOIS DAM
NEAR POINT ROCKWAY,
ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATION NO. PA-5-11011
ST. LAWRENCE CONTRACT NO. 11

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of Iroquois Dam and appurtenant works near Point Rockway, St. Lawrence County, New York in the following ways:

(1) If brought in person on the day of receiving bids until 11:00 A. M. Eastern Daylight Saving Time on the 26th day of May, 1955, in the Chamber of Commerce Building of the State of New York, 65 Liberty Street, in the "Great Hall" located on the 2nd floor, New York, New York.

(2) If mailed in until 10:30 A. M. Eastern Daylight Saving Time on the 26th day of May, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposals will be publicly opened and read aloud at the time and at the address given in (1) above.

The principal items of work are:

Estimated:

214,000	cu. yds.	Excavation for Cofferdams
14,300	MFBM	Timber Cribs for Cofferdams
279,000	cu. yds.	Crib Fill for Cofferdams
2,900	tons	Steel Sheet Piling for Cofferdams
2,726,000	cu. yds.	Excavation, Common, Dry
39,000	cu. yds.	Excavation, Rock, Dry
1,240,000	cu. yds.	Excavation, Common, Wet
18,500	lin. ft.	Drill Holes for Exploration and Grouting
91,300	cu. yds.	Embankments and Protection Stone
161,620	cu. yds.	Concrete
8,526,000	lbs.	Structural Steel and Miscellaneous Metalwork
13,260,000	lbs.	Erection of Gates and Guides
1,300,000	lbs.	Erection of Gantry Cranes

The work shall be completed on or before February 28, 1958.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Fifty ($50.00) dollars per initial set and Twenty-five ($25.00) dollars per set for additional sets, no part of which will be refunded.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 10 percent of the gross sum bid except that guarantee in excess of $2,000,000 will not be required.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: May 12, 1955

Construction of Sanitary Sewers

ADVERTISEMENT FOR BIDS FOR
CONSTRUCTION OF SANITARY SEWERS
ALLENDALE SECTION
St. Petersburg, Florida

Sealed proposals will be received by the City of St. Petersburg, Florida at the office of the Purchasing Agent in the Municipal Building, St. Petersburg, Florida, until 10:00 A.M. (EST) Thursday, May 12, 1955 for the CONSTRUCTION OF SANITARY SEWERS, ALLENDALE SECTION, Parts A, B, and C, at which time and place they will be publicly opened and read aloud.

Prospective bidders shall furnish the City detailed information pertaining to their qualifications, on forms available from the office of the City Manager. Only contractors who, in the opinion of the City, are able and competent of performing the work, may be awarded contracts. The forms must be completed and returned to the office of the City Manager, not later than May 8, 1955.

Plans, specifications, and contract documents are open to public inspection at the office of the City Engineer, Room 211, Municipal Building, or may be obtained from that office upon deposit of Thirty-five Dollars ($35.00). All depositors will be refunded Twenty-five Dollars ($25.00) upon return of all documents in good condition, within thirty (30) days after the date of opening of the bids.

All proposals shall be on standard forms furnished by the City Engineer and shall be sealed and marked: "Proposal for Construction of Sanitary Sewers, Allendale Section". Proposals must be accompanied by a certified check or bid bond in the amount of not less than five per cent (5%) of the bid. No proposal may be withdrawn after the scheduled closing time for the receipt of proposals for a period of thirty (30) days.

The City of St. Petersburg reserves the right to reject any or all bids and to waive informalities and irregularities.

CITY OF ST. PETERSBURG, FLA.
By: Ross E. Windom, City Manager

Bids: June 7, 1955

Middlesex County Sewerage Authority New Brunswick, N. J.

NOTICE TO CONTRACTORS

Sealed bids for constructing the westerly section of the Main Trunk Sewer, under Contract number 9, will be received at the office of the Middlesex County Sewerage Authority, 103 Bayard Street, New Brunswick, N. J., until 2:00 P.M. Eastern Daylight Saving Time, on June 7th, 1955, and then will be publicly opened and read aloud.

Project includes 482 lineal feet of 24 inch, 17,025 lineal feet of 60 inch, 18,102 lineal feet of 66 inch sewers, as principal sewers, and 728 lineal feet of connections to the participants, including all appurtenances.

Drawings, and contract documents may be examined at offices of the Authority and of Charles J. Kupper, Engineer, 15 Stelton Road, New Market, N. J. Copies may be obtained only from the Authority on payment of $25.00, and which amount will not be refunded.

Bid Security: certified check to the order of The Middlesex County Sewerage Authority or bid bond for $160,000. Successful bidder must furnish 100% performance bond.

MIDDLESEX COUNTY SEWERAGE AUTHORITY
By: CHESTER A. LYDECKER,
Chairman

OFFICIAL PROPOSALS

Bids: May 5, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 5th day of May 1955, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, N. F. Ronan, Acting District Engineer, 353 Broadway, Albany, N. Y.						
Greene	C.T. 55-6	New York State Thruway—Catskill Section—Sub. 6 (Coxsackie Gas Station-Restaurant Site) Type B	....	Grading, Paving & Misc. Work	$9,600 Plans $10	167,000
Saratoga	FARC 55-8	Wait Corners-Lapes Corners, S.H. 1523 Lapes Corners-Clifton Park, S.H. 8137 Proj. S-202(2)	2.71	Asp. Conc., Opt.	$15,000 Plans $10	271,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Herkimer	M.T. 55-4	New York State Thruway—Mohawk Section—Sub. 10A (East Schuyler Gas Station-Restaurant Site) Type B	....	Grading, Paving & Misc. Work	$9,500 Plans $10	170,000
Herkimer	M.T. 55-5	New York State Thruway—Mohawk Section—Sub. 11A & 12A (Indian Castle Gas Station-Restaurant Site) Types A & C	....	Grading, Paving & Misc. Work	$30,000 Plans $10	545,000
Montgomery	M.T. 55-6	New York State Thruway—Mohawk Section—Sub. 15 (South Amsterdam Gas Station-Restaurant Site) Type B	....	Grading, Paving & Misc. Work	$21,000 Plans $10	378,000
Montgomery	R.C. 55-18 FARC 55-19	Fort Plain-Canajoharie—Canajoharie-Fultonville, Pt. 1, S.H. 8348 Canajoharie-Fultonville, Pt. 2, S.H. 8371 Canajoharie Village; Erie Blvd. and Main St. Pt. 2, S.H. 1866A Canajoharie Village: Erie Blvd. and MainSt., S.H. 1866 Proj. F-467(5)	5.79	Asp. Conc., Opt.	$23,000 Plans $10	399,000
DISTRICT No. 6, J. H. Thomas, District Engineer, State Office Bldg., Hornell, N. Y.						
Chemung	FARC 55-11	Big Flats-Fitch Bridge, S.H. 8411 Fitch Bridge-Elmira, S.H. 946 Proj. F-596(3)	6.25	Asp. Conc., Opt.	$40,000 Plans $15	722,000
Schuyler	FARC 55-12	Horseheads-Montour Falls, S.H. 5208 Montour Falls, S.H. 5160 Proj. F-479(13)	1.25	Asp. Conc., Opt.= 1.24 Mi. Misc. Work = 0.01 Mi.	$8,000 Plans $10	144,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Dusee St., Watertown, N. .						
Saint Lawrence	FARC 55-14	Richville-Dekalb, Pt. 2, S.H. 9236 Proj. F-428(6)	3.09	Asp. Conc., Opt.	$23,000 Plans $15	416,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Putnam & Westchester	FARC 55-22	Peekskill-Fishkill Pts. 1 & 2, S.H. 5147-5387 Proj. F-394(13)	4.01	Asp. Conc., Opt.	$25,000 Plans $10	421,000
DISTRICT No. 9, F. W. Donovan, District Engineer, 71 Frederick Street, Binghamton 21F, N. Y.						
Broome & Chenango	FARC 55-16	Barker S.H. 375; Chenango Forks-North Fenton, S.H. 1241; Port Crane-North Fenton, S.H. 963; North Fenton-Belden Pt. 1, S.H. 9036; North Fenton-Belden, Pt. 2, S.H. 8427 Proj. S-440(1)	11.96	Asp. Conc., Opt	$35,000 Plans $15	623,000
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Ltle East Neck Rd., Babylon L. I., N. Y.						
Suffolk	FARC 55-24	Port Jefferson-Riverhead Pt. 1 S.H. 8094 Port Jefferson-Riverhead, Pt. 2B S.H. 8111 Proj. S-430(2)	6.13	Asp. Conc. Opt.= 605 Mi Misc. Work = 0.08 Mi.	$38,000 Plans $10	658,000
Suffolk	FARC 55-25	Mattituck-Greenport, Pts. 1 & 3 S.H. 8229 Proj. F-348(6)	1.91	Asp. Conc., Opt.	$22,000 Plans $15	403,000
Suffolk	FARC 55-26	Bayshore-Brookhaven Town Line, S.H. 5301, Proj. S-442(1)	0.28	Asp. Conc., Opt.= 0.26 Mi. Misc. Work = 0.02 Mi.	$6,000 Plans $10	103,000
Suffolk	FARC 55-27	Bridgehamton-Devon Pt. 2, S.H. 1524 Proj. F-559(9)	2.26	Asp. Conc., Opt.= 2.24 Mi. Misc. Work = 0.02 Mi.	$20,000 Plans $10	397,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

John W. Johnson
SUPT. OF PUBLIC WORKS

Bids: May 20, 1955

Water Tunnels and Shafts

CITY OF CHICAGO INVITES BIDS FOR THREE (3) SECTIONS OF WATER TUNNELS AND SHAFTS CONNECTING TO CHICAGO AVENUE WATER TUNNEL AND WILSON AVENUE WATER TUNNEL FOR CENTRAL DISTRICT FILTRATION PLANT.

Chicago, April 15, 1955

SEALED PROPOSALS on three (3) sections of Water Tunnels and Shafts will be received by the Department of Purchases, Contracts and Supplies, until 11:00 A.M. Central Daylight Savings Time, Friday, May 20, 1955 at Room 401, City Hall, Chicago, Illinois, at which time and place all such proposals will be opened and read publicly.

Brief descriptions of the three tunnel sections are as follows:

SPECIFICATIONS No. 80.391-55-1 ... SECTION "A".

Furnishing all labor and materials required and necessary for the construction of four (4) shafts in the area 400 to 1800 feet north of Navy Pier and from Lake Shore Drive to a point approximately 2000 feet East thereof; one (1) 20 foot tunnel in rock, 1400 feet in length; three (3) 16-foot tunnels in rock, approximately 11,400 feet in length; and one (1) 16-foot tunnel in clay, approximately 80 feet in length in accordance with specifications and Drawings, together with all other work appurtenant thereto.

SPECIFICATIONS No. 80.391-55-2 ... SECTION "B".

Furnishing all labor and materials required and necessary for the construction of shaft in park area S.E. of Belmont Harbor on approximate line of Wellington Avenue extended—two lengths of 16 foot tunnel in rock, with total length of approximately 14,300 feet, one extending southeasterly to connection with Tunnel Section "A", and the other extending North-westerly to connection with Tunnel Section "C" in accordance with specifications and Drawings together with all other work appurtenant thereto.

SPECIFICATIONS No. 80.391-55-3 ... SECTION "C".

Furnishing all labor and materials required and necessary for the construction of two (2) shafts in Park Area south of Wilson Avenue and East of Clarendon Avenue, two (2) 16-foot tunnels in rock, with total length of approximately 4700 feet; one (1) 12-foot tunnel in rock, 200 feet in length; one (1) 8-foot tunnel in clay, approximately 246 feet in length; and one (1) By-Pass structure in accordance with specifications and Drawings, together with all other work appurtenant thereto.

Bidders may bid on any one section, combination of sections or on all three (3) sections.

A proposal shall be accompanied by a bid deposit in cash, cashier's check, certified check or Comptroller's Certificate of monies owed the particular bidder in amounts as follows:

Section "A"	$180,000.00
Section "B"	145,000.00
Section "C"	60,000.00
Total for Sections "A", "B" and "C"	$385,000.00

Checks are to be drawn on some responsible bank located and doing business in the United States and are to be made payable to the Purchasing Agent, City of Chicago.

A deposit for plans and specifications of $50.00 is required for each section or $150.00 for all three sections. These deposits are returnable upon return of plans and specifications.

All communications and requests for plans and specifications should be addressed to the Purchasing Agent, Department of Purchases, Contracts and Supplies, Room 401, City Hall, Chicago 2, Illinois.

JOHN F. WARD
Purchasing Agent

OFFICIAL PROPOSALS

Bids: May 24, 1955

Contract LT-160.043

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL THIRD TUBE
PAVING AND UTILITIES
FOR
NEW JERSEY ADMINISTRATION BUILDING

Sealed proposals for the furnishing and installation of paving and utilities for the New Jersey Administration Building will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, May 24, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, April 28, 1955

Bids: May 27, 1955

Middlesex County Sewerage Authority New Brunswick, N. J.

NOTICE TO CONTRACTORS

Sealed bids for constructing the South River Interceptor under Contract number 10, will be received at the office of the Middlesex County Sewerage Authority, 103 Bayard Street, New Brunswick, N. J., until 2:00 P.M. Eastern Daylight Saving time, on May 27th, 1955, and then will be publicly opened and read aloud.

Project includes 6,800 feet of 48 inch pipe; 18,000 feet of 45 inch pipe; 570 feet of 24 inch pipe; 26 manholes; 5 meter chambers and 4 inverted siphons, including all appurtenances.

Drawings and contract documents may be examined at offices of the Authority and of Bogert-Childs Engineering Associates, 624 Madison Avenue, New York 22, New York. Copies may be obtained only from the Authority on payment of $50.00, and which amount will not be refunded.

Bid security: certified check to the order of The Middlesex County Sewerage Authority or bid bond for $75,000. Successful bidder must furnish 100% performance bond.

MIDDLESEX COUNTY SEWERAGE AUTHORITY
By: CHESTER A. LYDECKER, Chairman

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4405) will be received at Fargo, North Dakota, until June 2, 1955, for furnishing labor and materials for Fargo Substation and Modifications at Jamestown Substation, Transmission Division, Missouri River Basin Project, North Dakota. Location near Fargo and Jamestown, North Dakota. Principal items are 7,790 cu. yds. excavation; 1,170 cu. yds. concrete; 403,000 lbs. furnishing and erecting steel structures; furnishing and installing three 1,000,000 B.t.u. per hour evaporative coolers; 10,600 lbs. furnishing and installing metal pipe, fittings, and valves; constructing service building; installing synchronour condenser; 7,000 lin. ft. furnishing and installing aluminum pipe bus; and other work. Completion time 350 days. For particulars, address Bureau of Reclamation, P. O. Box 2130, Billings, Montana; P. O. Box 1993, Fargo, North Dakota; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: May 17, 1955

Power Authority Of The State Of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF HIGH PRESSURE OIL PIPE-TYPE CABLE
SPECIFICATION NO. PA-4-14004
ST. LAWRENCE CONTRACT NO. P10

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture, and furnishing of two (2) circuits of 230 kv high pressure oil, pipe-type cable and appurtenances and two (2) circuits of 115 kv high pressure oil, pipe-type cable and appurtenances and the delivery thereof f.o.b. the Authority's classification yard, Massena, New York, in the following ways:

(1) If brought in person on the day of receiving bids until 2:30 P.M. Eastern Daylight Saving Time on the 17th day of May, 1955, 270 Broadway, Room 1704, New York, New York.

(2) If mailed in until 2:15 P.M. Eastern Daylight Saving Time on the 17th day of May, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

Each circuit of high pressure, oil pipe-type cable shall consist of the high voltage cable, the steel pipe for the three-phase cable run, non-magnetic pipe (copper tubing) for the single phase cable runs, terminal assemblies (potheads), three-conductor trifurcating joint assemblies or sleeves, straight joint and splice assembly, special insulating oil and appurtenances for connecting the three (3) single phase transformers to the switchyard bus. A dual pumping plant, including all electrical controls, oil reservoir, and all necessary valves, piping (not embedded), gages, and other oppurtenances necessary to operate system as specified in the Technical Provisions of this specification, will be required for the two 230 kv circuits and a similar dual pumping plant for the 2-115 kv circuits. Delivery of the first 115 kv cable circuit will be required on or before July 1, 1957, and the remainder of the cable circuits to be delivered in accordance with the delivery schedule in this specification. Bids will be entertained only for all four circuits and associated equipment and services in accordance with the bidding schedule. Erection at the site of installation will be done by others, but services of an erecting engineer shall be provided by the manufacturer if and when required.

Plans, specifications, and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications, and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, N. Y., upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid deposit will be required with each bid in an amount not less than 10 per cent of the maximum price bid for any bid schedule.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: May 17, 1955

Power Authority Of The State Of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF GENERATOR GROUNDING CUBICLES
SPECIFICATIONS NO. PA-5-14007
ST. LAWRENCE CONTRACT NO. P16

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture, and furnishing of sixteen (16) generator grounding

OFFICIAL PROPOSALS

cubicles and delivery thereof f. o. b. the Authority's classification yard, Massena, New York in the following ways:

(1) If brought in person, on the day of receiving bids until 10:30 A.M. Eastern Daylight Saving Time on the 17th day of May, 1955, 270 Broadway, Room 1704, New York, New York.

(2) If mailed in, until 10:15 A.M. Eastern Daylight Saving Time on the 17th day of May, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

Bids will be entertained for 16 generator grounding cubicles and associated equipment and services in accordance with the bidding schedule. Erection at the site of installation will be done by others but services of an erecting engineer shall be provided by the manufacturer if and when required.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications, and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. Bid deposit will be required with each bid in an amount not less than 10 percent of the price bid for the schedule.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-5-14007

Bids: May 24, 1955

Middlesex County Sewerage Authority New Brunswick, N. J.

NOTICE TO CONTRACTORS

Sealed bids for constructing the Sayreville Force Main, under Contract number 11, will be received at the office of the Middlesex County Sewerage Authority, 103 Bayard Street, New Brunswick, N. J., until 2:00 P.M. Eastern Daylight Saving time, on May 24th, 1955, and then will be publicly opened and read aloud.

Project involves the construction of approximately 19,000 lineal feet of reinforced concrete pressure pipe, including all appurtenances. Alternate proposals are to be received for 72 inch and 78 inch diameter pipe. Work is located in Sayreville, New Jersey, generally following the Raritan River.

Drawings and contract documents may be examined at offices of the Authority and of Elson T. Killam, Engineer, 529 Millburn Avenue, Short Hills, N. J. Copies may be obtained only from the Authority on payment of $50.00, and which amount will not be refunded.

Bid security: certified check to the order of The Middlesex County Sewerage Authority or bid bond for $100,000. Successful bidder must furnish 100% performance bond.

MIDDLESEX COUNTY SEWERAGE AUTHORITY
By: CHESTER A. LYDECKER, Chairman

Contractors Watch This Section —

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: May 12, 1955

Water Mains and Appurtenances For Water District No. One

IN THE
TOWNSHIP OF SPARTA AND COUNTY OF SUSSEX, SPARTA, N. J.

Sealed bids for the construction of water mains in Main Street, Sparta Avenue and Mohawk Avenue, will be received at the office of Township Committee in the Town Hall, Sparta, N. J. until 8:00 P.M. Eastern Daylight Saving Time on the 12th day of May 1955 and then at said office, publicly opened and read aloud.

The work will consist of 2500 feet of 8 inch pipe and 1720 feet of 6 inch pipe with valves, hydrants and appurtenances and the unloading, hauling and installing of the above pipe, valves and hydrants and appurtenances and making connections to existing mains.

The Information for Bidders, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of the Clerk, of Township Committee, Township of Sparta, New Jersey, and at the office of Keis & Holroyd, Consulting Engineers, 257 Broadway, Troy, New York. Copies thereof may be obtained at the said office of the Clerk, of Township Committee, or Keis & Holroyd, upon payment of $25.00 for each set. Any bidder upon returning such set promptly in good condition will be refunded his payment and any non-bidder upon so returning such set within 30 days of date for receiving bids, will be refunded $20.000.

The Water Commission, Township of Sparta, New Jersey, reserves the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the Township Committee of Township of Sparta, New Jersey, in the amount of 5% of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within 5 days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.

The successful bidder will be required to furnish a Performance Bond satisfactory to the Water Commission of Water District No. One in the Township of Sparta, New Jersey, in the amount of the contract and having as surety thereon such Surety Company or Companies as are acceptable to the Township of Sparta, New Jersey.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above postponement thereof.

CHARLES G. BETHEL, Clerk
Dated: April 20, 1955
KEIS & HOLROYD
Consulting Engineers
Troy, New York

U. S. Government

DEPARTMENT OF INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4411) will be received at Yuma, Arizona, until June 9, 1955, for furnishing labor and materials for earthwork, concrete lining, and structures, Texas Hill Canal and Distribution System, Gila Project, Arizona. Location near Growler, Arizona. Principal items are 396,000 cu. yds. excavation for canal and laterals; 730,000 cu. yds. excavation for drainage channels and dikes; 30,750 cu. yds. excavation for structures; 2,165 cu. yds. concrete in structures; 11,600 cu. yds. unreinforced concrete canal and lateral lining; 20,000 barrels furnishing and handling cement; 219,000 lbs. furnishing and placing reinforcement bars; 4,451 lin. ft. furnishing and laying 12-inch to 72-inch concrete pipe; furnishing and installing 7 outdoor-type, motor-driven pumping plants; and other work. Completion time 440 days. For particulars, address Bureau of Reclamation, Bin 151, Yuma, Arizona; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

READ THE OFFICIAL
PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS

Bids: June 10, 1955

Middlesex County Sewerage Authority New Brunswick, N. J.

NOTICE TO CONTRACTORS

Sealed bids for constructing the easterly section of the Main Trunk Sewer, under Contract number 9A, will be received at the office of The Middlesex County Sewerage Authority, 103 Bayard Street, New Brunswick, N. J., until 2:00 P.M. Eastern Daylight Saving Time, on June 10th, 1955, and then will be publicly opened and read aloud.

Project includes 2,643 lineal feet of 66 inch, 20,934 lineal feet of 84 inch sewers, as principal sewers, and 4,907 lineal feet of connections to the participants, including all appurtenances.

Drawings and contract documents may be examined at offices of the Authority and of Charles J. Kupper, Engineer, 15 Stelton Road, New Market, N. J. Copies may be obtained only from the Authority on payment of $25.00, and which amount will not be refunded.

Bid security: certified check to the order of The Middlesex County Sewerage Authority or bid bond for $235,000. Successful bidder must furnish 100% performance bond.

MIDDLESEX COUNTY SEWERAGE AUTHORITY
By: CHESTER A. LYDECKER
Chairman

Bids: May 23, 1955

Eastern Utilities Commission

ADVERTISEMENT FOR BIDS

Sealed Proposals will be received by The Easton Utilities Commission at their office in Easton, Maryland until 8:00 P. M., E.D.S.T., Monday, May 23, 1955 for repairing and painting one water storage standpipe and painting one elevated water storage tank and tower in the Town of Easton, Maryland.

Form of Contract, Specifications and Blank Proposals may be obtained from the Secretary-Treasurer of the Easton Utilities Commission upon deposit of ten ($10.00) dollars.

A certified check, cash or a bid bond in an amount of not less than ten per centum (10%) of the amount of the base bid must accompany each bid.

The Easton Utilities Commission of Easton, Maryland reserve the right to reject any or all bids or sections of bids as deemed to the best interest of the Town of Easton, Maryland.

WM. H. CORKRAN, JR.,
TOWN ENGINEER
RALPH A. TOWNSEND
SECRETARY-TREASURER

Bids: May 10, 1955

Massachusetts Turnpike Authority

NOTICE TO CONTRACTORS

Sealed proposals for Highway and Bridge construction for a section of the Massachusetts Turnpike in the Towns of Hopkinton, Westborough, Southborough, Ashland and Framingham (CONTRACT NO. 51-093) will be received at the office of the Secretary-Treasurer, Massachusetts Turnpike Authority, Room 1059, 80 Boylston Street, Boston 16, Massachusetts until 11:00 A.M. of Tuesday, May 10, 1955, and immediately thereafter will be publicly opened and read in the Surrey Room on the lobby floor of the Hotel Touraine across the street from the Turnpike Authority's offices.

Proposal Guaranty: $150,000.
Charge for plans and proposal forms: $100.00, not refundable.
Charge for printed copy of Standard Specifications: $10.00, not refundable.

Complete information at said office of the Authority: at office of General Consulting Engineer to Authority: Howard, Needles, Tammen & Bergendoff, Room 1146, 80 Boylston Street, Boston 16, Massachusetts, and at office of Section Engineer: The Clarkeson Engineering Company, Inc., 285 Columbus Avenue, Boston, Massachusetts.

Minimum wage and dump-truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to promptly undertake and complete the work.

By: WILLIAM F. CALLAHAN,
Chairman
April 16, 1955

OFFICIAL PROPOSALS

Bids: May 12, 1955

Contract No. P-6

DELAWARE RIVER PORT AUTHORITY
Administration Building
Camden, New Jersey

ROADWAY GRADING AND DRAINAGE, SEPARATION STRUCTURES AND CITY STREET CHANGES, MOYAMENSING AVENUE TO 7th STREET, and RANDOLPH STREET STRUCTURE

Sealed bids will be received for ROADWAY GRADING AND DRAINAGE, SEPARATION STRUCTURES AND CITY STREET CHANGES, MOYAMENSING AVENUE TO 7TH STREET, and RANDOLPH STREET STRUCTURE of the Bridge over the Delaware River Connecting Packer Avenue, Philadelphia, Pennsylvania, and Gloucester, New Jersey known as Contract P-6, at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey until 2:30 P. M. (Eastern Standard Time), Thursday, May 12, 1955 at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon a deposit of $10.00 which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified check in the sum of $200,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 per cent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO
Executive Director

COMMONWEALTH OF MASSACHUSETTS. Department of Public Works. NOTICE TO CONTRACTORS: Sealed proposals for State Highway and Bridge Construction (Southern Circumferential Highway) in CANTON, DEDHAM and WESTWOOD, U-229 (9), will be received at Room 427, 100 Nashua Street, Boston, Mass., until 2:00 P.M. (DST) of Tuesday, May 10, 1955, and at that place and time publicly opened and read. Proposal guaranty: $45,000. Charge for plans and proposal forms: $20.00, amount returnable only to bidders. Complete information at said office, plans on display at District offices. Minimum wage and dump-truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work. By: John A. Volpe, Commissioner of Public Works.
April 23, 1955.

COMMONWEALTH OF MASSACHUSETTS. Department of Public Works. NOTICE TO CONTRACTORS: Sealed proposals for Highway and Bridge Construction in the Towns of DENNIS, HARWICH and BREWSTER, F-328 (5), will be received at Room 427, 100 Nashua Street, Boston, Mass., until 2:00 P.M. (DST) of Tuesday, May 10, 1955, and at that place and time publicly opened and read. Proposal guaranty: $50,000. Charge for plans and proposal forms: $35.00, amount returnable only to bidders. Complete information at said office; plans on display at District offices. Minimum wage and dump-truck rates have been established. Right reserved to waive any informality in or reject any or all proposals. An award will not be made to a Contractor who is not equipped to undertake and complete the work. By: JOHN A. VOLPE, Commissioner of Public Works.
April 23, 1955.

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: "OPPORTUNITIES" :EQUIPMENT :USED OR RESALE

UNDISPLAYED RATE

$1.80 a Line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.

POSITION WANTED undisplayed rate is one-half of above rate, payable in advance.

Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.

SEND NEW ADVERTISEMENTS to N. Y. office, 330 W. 42nd St., N. Y. 36, for May 12th issue, closing May 2nd.

Replies are forwarded each day as received at each of the offices mentioned without additional charge.

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED RATE

The advertising rate $20.50 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.

An advertising inch is measured ⅞ inch vertically on one col. 3 col.—30 inches to a page. E.N.R.

QUALIFIED ENGINEERS *WANTED*

AT LABRADOR AIR BASE

Full Time Employment **To take responsible charge of Field Program**

Paving Engineer. 10-15 years experience in concrete and asphalt paving. Must have at least 5 years experience in a responsible capacity.

Materials Engineer. Thoroughly experienced in field laboratory testing procedures for general construction. Administrative ability necessary.

Mechanical Engineer. 12-15 years broad experience in construction of all types of mechanical facilities including heating, ventilating, air-conditioning and power plant.

Annual Salaries $9,600–$10,800

Send complete resume of experience, age, education, availability and furnish references.

Fay, Spofford & Thorndike, 11 Beacon St., Boston 8, Mass.

JOB ENGINEERS

MECHANICAL OR CHEMICAL

SAN FRANCISCO

assignment

Recent design experience on petroleum refineries or chemical plants. Assignment requiries thorough knowledge of heat exchangers, pumps, piping layouts, specification work, and analysis of bids. Compensation commensurate with ability. Please write furnishing complete chronological experience record and salary history, also full details regarding education, salary required, business and character references.

BECHTEL CORPORATION

220 Bush Street San Francisco 4, Calif.

MATERIALS ENGINEERS

CONSTRUCTION

Experienced technician and administrator in one or more fields of concrete, steel, lumber, Bituminous Materials, Soils, Aggregates, Paints and general building materials. Inspection and control work. Degree required. Professional license preferred.

GENERAL

Ch. E., M.E., or G.E., possessing broad background general materials; Corrosion studies and determination of properties.

Box EN 1763, 221 W. 41 St., N. Y. 36

CEMENT PLANT DESIGN ENGINEERS

Old well established Engineering Firm in Western Pennsylvania needs two engineers with design, construction and considerable practical experience in actual cement mill operation. One could well be of recently retired status, the other preferably in the 35 to 45 year age bracket. Replies held confidential and will be promptly acknowledged. Please give all pertinent details in chronological experience record and salary expected in first letter to

P-6297, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

GUNITE ENGINEER for estimating and project coordination as assistant to President of Nationally known Gunite Company, Philadelphia area. P-6085, Engineering News-Record.

INSTRUCTOR OR assistant professor with M.S. degree to teach Mechanics and Route Surveying. Salary for nine months $4,000, to $5,000, depending on qualifications. Location, Northern New York. P-6114, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT thoroughly experienced in field supervision of industrial and institutional buildings. A good opportunity with a substantial firm. Give full information covering education, experience, references, age, availability and salary in letter of application. Location South. P-6213, Engineering News-Record.

ASSISTANT ENGINEERS: Wanted by the City of Ann Arbor, Michigan population 55,000, two graduate civil engineers with experience in Municipal engineering. One engineer with experience in sewer and pavement design. One engineer with experience in street maintenance for street superintendent and supervisor of municipal garage. Retirement plan, sick leave, blue cross, medical, surgical and hospitalization insurance, group life insurance and paid vacation of two weeks after first year, three weeks after fifteen years. Salary $5,000 to $6,000. Apply to City Engineer, City Hall, Ann Arbor, Michigan.

CHIEF JOB office engineer with extensive experience in heavy construction. No surveying or field layout work involved. 2 civil engineers with 4-5 years experience in heavy construction to assist the chief job engineer with quantity take-offs, form design and drafting, etc. 1 cost engineer to supply field information required by the cost department. 1 cost department quantity take-off man on heavy construction. Reply to P. O. Box 82 Aurora, Minnesota with complete resume of education, experience and salary expected.

WANTED: GENERAL superintendent for midwestern building construction organization. Age between 35 and 50. A good opportunity with salary and bonus for qualified man. Submit complete resume and required salary. P-6199, Engineering News-Record.

EXPERIENCED STRUCTURAL Engineer. Steel Detailer with at least 10 years experience to check detail shop drawings and supervise six other detailers for fabricated structural and miscellaneous steel for buildings. Town of nine thousand, central Pennsylvania. Write detailed summary of education, experience and minimum salary expected. P-6139, Engineering News-Record.

SEARCHLIGHT SECTION

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PROJECT MANAGER

Experienced capable of handling entire field operation. Administrative experience in government construction contracts imperative. Age 35 to 50. Must be willing to work in isolated locations, domestic and foreign. Salary commensurate with location and responsibilities.

P-6296, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS VACANT

BRIDGE DESIGNERS Wanted. Permanent location—5 day week—retirement. Reply stating experience, education, age. Wyoming Highway Department, Cheyenne, Wyoming.

EXPERIENCED ASPHALT plant operator wanted to operate an asphalt plant, familiar with hot and cold mixes. Steady job in the vicinity of Philadelphia and South Jersey. Write experience and expected salary to P-6252, Engineering News-Record.

STRUCTURAL DRAFTSMAN in a small growing structural shop. Unusual opportunity for growth. Douglas Steel Fabricating, Box 5102, Lansing, Mich.

GRADUATE ENGINEER about 35 years of age with at least 10 years experience in estimating for general contractor in Newark, N. J. industrial, commercial and institutional buildings. State references, experience and salary desired. P-6253, Engineering News-Record.

SALES ENGINEER, to learn business of long established sub-contractor operating all Central and Northeastern States, estimate, close lump sum contract work, lead to full charge District Office, write Martin Fireproofing Corporation, 2200 Military Road, Buffalo 17, New York.

WANTED: GRADUATE engineer or architect with at least three years experience in building layout and design. P-6283, Engineering News-Record.

PARTY CHIEF also draftsman for engineer land surveyor. Must be either graduate or thoroughly familiar with topo-mapping and general surveying. No drinkers. State age, education, experience, salary desired, when available to P. O. Box 464, Bessemer, Alabama.

INSTRUCTORS: MECHANICS, structural theory, and highway traffic, beginning September 1, 1955. Location, Mississippi. P-6286, Engineering News-Record.

ENGINEER TO estimate and design prestressed concrete members for established pre-stressed concrete manufacturing plant. P-6285, Engineering News-Record.

POSITIONS WANTED

CONSTRUCTION MANAGER. Industrial constr. exper. multi-project field supervision. Civil engr. available soon. Anywhere USA. 6430 Lemon Avenue, Long Beach 5, Calif.

CONSTRUCTION ACCOUNTANT, office manager, both field and home, thoroughly experienced all phases, ten years experience, currently with large sand & rock & ready mix plant southwest. Prefer foreign assignment. PW-6219, Engineering News-Record.

PROJECT SUPERVISOR — Manager — general superintendent. Chemical process packaging plants. U.S. and foreign. Knowledge projects in toto flow sheets to production by progress through engineering and construction departments. Degree equivalent. 25 years experience. Residence N. Y. City. Will accept office, field, and foreign assignments. PW-6208, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and engineer desires work in New England. Experienced industrial plants, housing, heavy construction, bridge and marine work, skilled estimator. PW-6168, Engineering News-Record.

ESTIMATING HEAVY construction long varied experience field office New York only. PW-6244, Engineering News-Record.

HIGHWAY-SANITARY Engineer, age 28. B. S. in structural engineering, M. S. in sanitary engineering expected in June; P. E. (Mich.). Over five years experience in all phases of highway engineering; two years as survey chief-senior project engineer in highway surveys and construction. Civil engineering instructor. PW-6243, Engineering News-Record.

PROFESSIONAL ENGINEER and surveyor, age 42 wishes to associate with established consulting engineer on possible partnership basis; financially responsible, experienced in methods of many leading AE firms, waterworks, sewage disposal, subdivisions, and atomic energy facilities. Phone O. R. 2-8517 Apt. #3 5410 W. Greenfield Ave., Milwaukee 14, Wisconsin.

CIVIL ENGINEER — BSCE — 35 5 yrs. structural design. 3 yrs. field office on steam & hydro electric projects. Considerable experience with material handling problems. Desires permanent position with opportunities for advancement. PW-6256, Engineering News-Record.

HIGHWAY ENGINEERS

Designers, Detailers and Draftsmen for office work on highways and expressways. Long-term projects. Desire experience or training including alignment and profile computations, layout on aerial photographs, geometric design of interchanges and associated work.

Employee Benefit and Retirement Plan, paid vacations and holidays, sick leave. Modern, air conditioned offices in downtown St. Louis. Please write fully to or inquire at

SVERDRUP & PARCEL ENGINEERING CO.

1625 Eye Street, N.W.
Washington 6, D. C.

1134 Locust
St. Louis 1, Mo.

POSITIONS WANTED

ELECTRICAL & MECHANICAL Engineer (PE) completing foreign contract available May 15. Broad experience as project engineer on airfields, hydro & thermal plants, transmission, communications, POL, industrials, & AE. Foreign only. PW-6255, Engineering News-Record.

CIVIL ENGINEER, P.E., experienced design and construction, familiar estimating, costs, and specification writing. Desires permanent, interesting position having good compensation with consulting engineer, contractor, or business firm, preferably Southwest. PW-6259, Engineering News-Record.

CONSTRUCTION ENGINEER — Superintendent. Extensive experience water supply, sewage, bridge, railroad, industrial and heavy construction. Organize and direct construction projects. Registered. Age 55. Available soon. PW-6265, Engineering News-Record.

ENGINEER, BSCE, 33, experienced in structural design, design coordination and administrative phases of construction wishes association with young aggressive consulting firm with opportunity to invest. PW-6267, Engineering News-Record.

MUNICIPAL DRAFTSMAN, 64, desires position in South or Southwest. 18 years with one city. PW-6273, Engineering News-Record.

CONSTRUCTION EXECUTIVE, available as project manager, on large operation, chief estimator for large organization or in other executive position where scope warrants employment of top man, thoroughly experienced on all types of construction and in every phase of general contracting. PW-5956, Engineering News-Record.

CIVIL ENGINEER, Graduate, 34, 9 yrs. exp., 3½ yrs. in field, 5½ yrs. in office. Exp'd in field supervision, design, drafting, estimating, costs, quantity take-off; reinf. concrete field and office. Top references given. Prefer N. Y. area. Available May 1st. PW-6300, Engineering News-Record.

CIVIL ENGINEER — 32, B.C.E. 6 years experience in steel erection and design. Have had responsible assignments in structural, plate, and pipe work, heavy machine installation and steel plant construction. PW-6304, Engineering News-Record.

PURCHASING AGENT, traffic, expediting, field office mgr., costs, liaison nations top gen. contrs. 20 yrs. private competitive & 10 yrs. gov't FF work. AEC Oak Ridge, Paducah, Portsmouth Q clearance. Prefer northeast. Available May. PW-6302, Engineering News-Record.

LAND SURVEYOR—20 years experience highways—railroads—earth moving—pile driving—steel erection. PW-6307, Engineering News-Record.

SELLING OPPORTUNITY WANTED

ARCHITECT, REGISTERED. Broad executive, contract, technical experience (foreign and domestic) interested in representing architectural or engineering firms located in the south, mid-west, west-coast, or foreign, as their New York area client or consultant contact for coordination expediting, new business. RA-6290, Engineering News-Record.

BUSINESS OPPORTUNITY

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278 CFM	125 PSI (2) stage CPTP350
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EASTERN DISTRICT OF NEW YORK

WED., MAY 4th, 1955
AT 11 A.M., ON PREMISES
7800 RIVER ROAD,
NO. BERGEN, NEW JERSEY
RE: H. QUIST CONTRACTING CORP.

MARINE CONTRACTING EQUIPMENT

4 FLOATING DERRICKS
2 PILE DRIVER BARGES
5 CRAWLER CRANES
4 McKIERNAN-TERRY HAMMERS

SCOWS, WELDING MACHINES, BUCKETS,
POWER, AIR & HAND TOOLS,
OUTBOARD MOTORS, JACKS, MATERIALS
MISCELLANEOUS DOCK BUILDING
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TELEPHONE: MAIN 4-4181

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JAW CRUSHERS: Allis Chalmers 18" x 30", sectionalized for underground use. V-Belt, 50 H.P., 220/440 volt motor, new condition. Other sizes 4" x 6" up to 48" x 60", with or without motors.

PULVERIZERS: Marcy 6' x 12', trunnion and bearing type, with 200 H.P., 440 volt motor, with stone or steel lining. Hardinge 5' x 22" Ball Mill complete with motor driven disc feeder, 30 H.P. motor and control. Also, Hardinge Conical Mills 8' x 36" and 8' x 24", helical gears, speed reducers and motors.

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CAR DUMPER: Link Belt, standard gauge.

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300 H.P., 435 RPM — 600 H.P., 710 RPM
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143'—12" W. I. Pipe
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2 Crocker Wheeler—75 HP—1160 RPM
4 Crocker Wheeler—50 HP—1750 RPM
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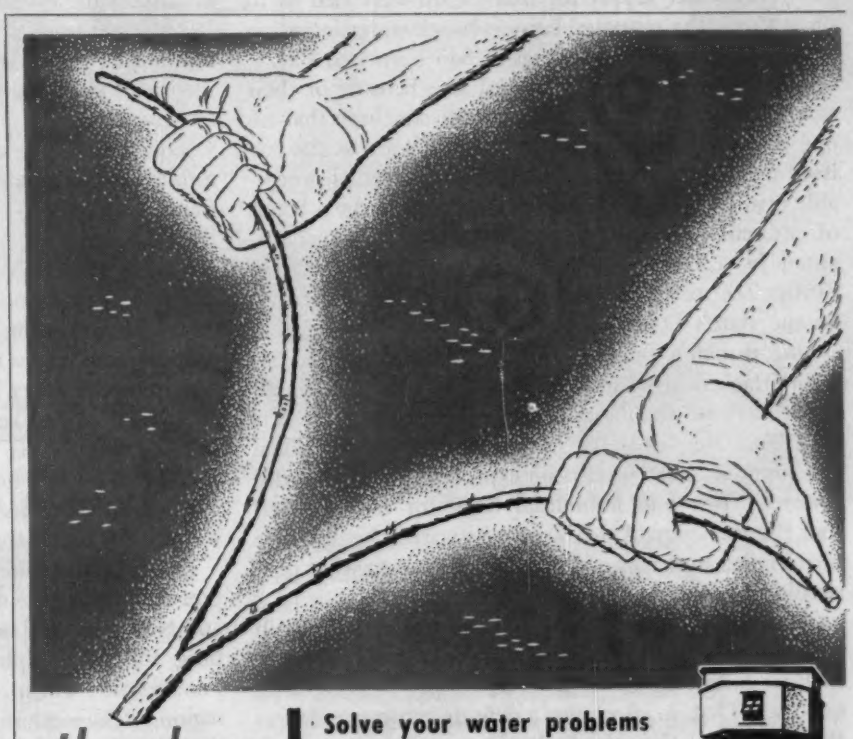

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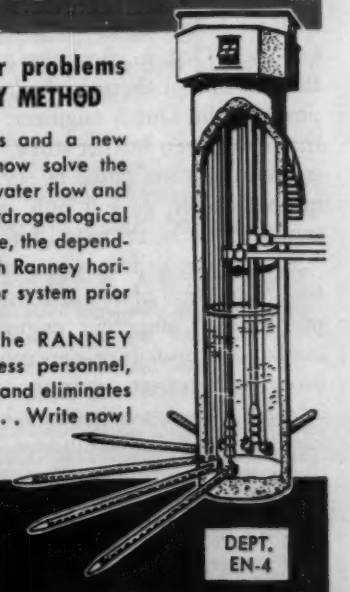

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EDITORIALS

California Water Planning

TWO ENGINEERING REPORTS on proposals to increase the fresh-water supply of the Central Valley region of California have just been submitted to the California Water Project Authority (ENR April 7, p. 25). They are important because they mark the application of careful engineering judgment to costly proposals that have not had enough of that kind of study in the past. This was due in large part to the fact that most proposals to improve the water supply for that region were tied in to plans to use the proposed barriers to salt-water intrusion as causeways for new crossings of San Francisco Bay.

The new reports are significant also because of their agreement on a basic question: Both conclude that no one of the several proposed long barriers across the bay itself or arms of the bay would assure water of acceptable quality. One of these reports was made by a board of eminent consulting engineers from this country assisted by a Dutch engineer with wide experience in Zuyder Zee reclamation work. The second was written by the state's Division of Water Resources.

Unfortunately the report of the consulting board has been attacked in what appears to be an unfair manner. Criticism from the disappointed proponents of projects that combine salt-water barriers with other regional development work was to be expected and can be discounted. But one influential legislator has declared that the money paid the board was wasted because the board failed to make conclusive findings as to what plan should be adopted.

That is quibbling. Actually, the board stated that all the plans put before it initially "were fatally defective in their failure to assure a water supply of acceptable quality." That, in effect, was a definite recommendation that no one of them be built. Concerning a new proposal by the Dutch engineer, the board recommended that it be given further study. Lacking full information concerning issues raised by the new proposal, the board, quite properly, gave it only qualified endorsement. It cannot fairly be criticized for that.

As a matter of fact, very real progress has been made toward solution of one of California's major engineering problems. Competent engineers have sifted all the available information concerning each of the several projects for conserving more of the fresh water flowing into San Francisco Bay, and have come to the conclusion that no barrier built across tidal waters will provide the correct solution for the water problem. If there is an answer, the board states, it may be found in some plan for diverting the fresh water before it reaches the tidal estuaries, as was proposed by the Dutch engineer after his study of the situation. The State Engineer concurs in these findings and has recommended that future study be concentrated on a detailed study of the Dutch engineer's plan.

Such a study should not take many months and should provide the California Water Project Authority with a definite answer to this difficult problem.

Why Fewer Trucks on the Penn Turnpike?

A DECLINE IN USE of the Pennsylvania Turnpike by commercial trucks during the past year (ENR March 10, p. 23) certainly is a cause for speculation in view of the steady upward climb in truck registrations during the same period. Numerically, the decline is small—from 302,600,000 truck-miles to 284,100,000—and it has little significance financially as the commission's total net income is far above that required for bond interest and amortization.

The decline might be due to a temporary situation resulting from lack of a direct connection between the Pennsylvania and New Jersey Turnpikes. Until the Delaware River extension of the Pennsylvania Turnpike was opened last November, the eastern end of that highway was near no good truck route to the New York metropolitan region. The extension probably helps, but it opens onto routes that are heavily overloaded. Due to this lack of a direct link between the two turnpikes, it could be that truckers who began using the extension of the Pennsylvania Turnpike east of Harrisburg when it was first opened have gone back to using U. S. 22 between Harrisburg and the New York region. That highway is a lot better than it was a few years ago.

But the cause could be a more direct result of the progressive improvements on U. S. 22 between Harrisburg and New York and on U. S. 230 and 30 between Harrisburg and Philadelphia. Truck operators who use the Pennsylvania Turnpike to get through the mountainous region of the western part of that state may have found that the time and fuel savings resulting from using the turnpike east of Harrisburg do not offset the toll costs.

Completion of the link now being built between the New Jersey and Pennsylvania Turnpikes could change the Harrisburg-New York situation completely because that link will provide truck operators across Pennsylvania with a superior route right to the major Hudson River crossings on which the time and fuel savings will be large.

Taking a long look ahead, such changes in the use of toll highways appears inevitable as the nation's free highways are brought up to modern standards, as most people hope they will be in the not too distant future despite the current lack of enthusiasm in Washington for the President's big road-building program. For long distance movements, the chain of toll highways that soon will link the Midwest with the big North Atlantic seaports will provide savings that offset toll costs. But for shorter distances, improvements in local highways probably will win back traffic that now is willing to pay a toll for a route better than the present one.

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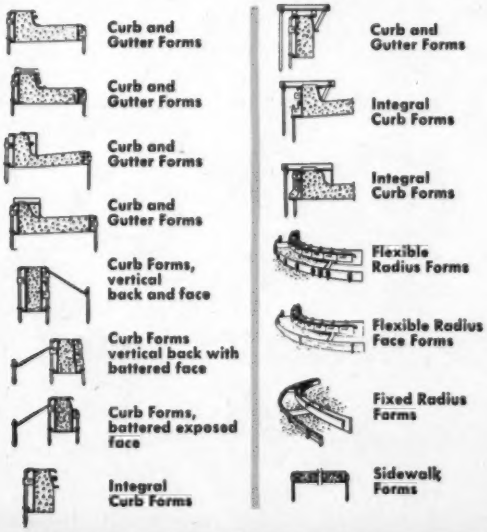

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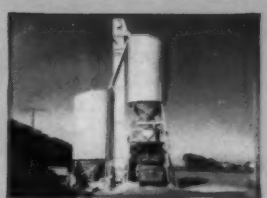

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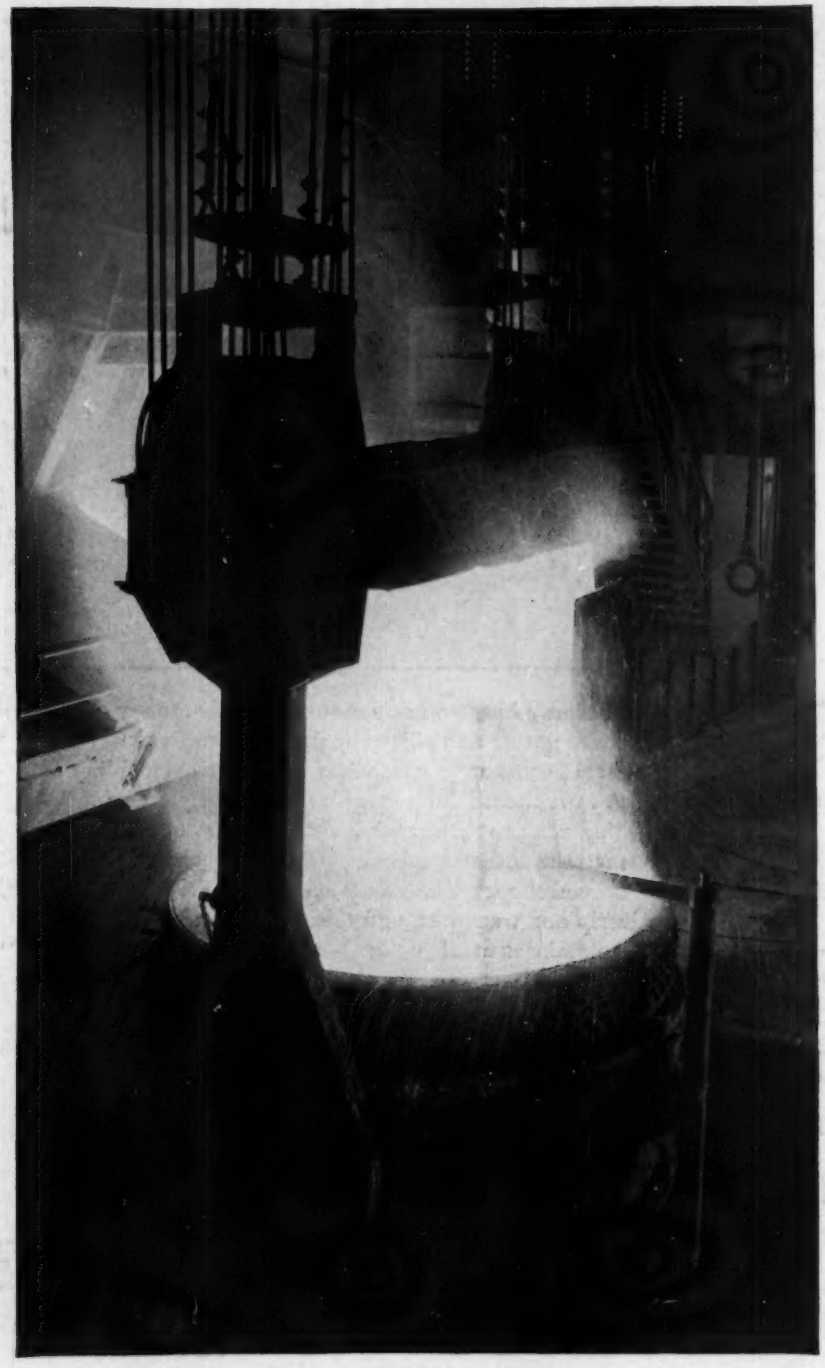

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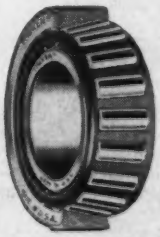
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